Receiver 70FR290/00R/05R

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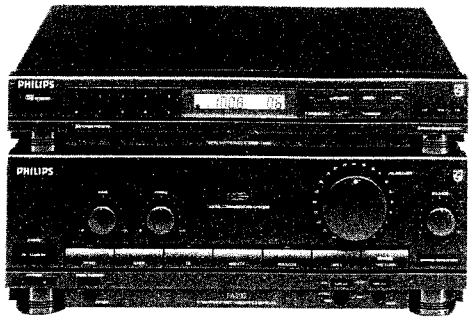

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Service Manual

FT290
FA260

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MC-Service

DocumentationTechnique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviço

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

Subject to modification

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PHILIPS

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SPECIFICATION

General		Nominal value	Typical value
Mains voltage		: 220 V – 240 V~	: 220 V – 240 V~
Mains outlet		: For power supply of CD or record player	: For power supply of CD or record player
Low voltage outlet (12 V DC)		: For power supply of cassette deck	: For power supply of cassette deck
Mains frequency		: 50 – 60 Hz	: 50 – 60 Hz
Power consumption		: . . W max	: . . W max
Dimensions (WxHxD)		: 360 x 180 x 300 mm	: 360 x 180 x 300 mm
Weight		: . . kg	: . . kg
Remote control		: RC290	: RC290
Tuner: FM section			
Tuning range		: 87.5 MHz to 108 MHz	: 87.5 MHz to 108 MHz
Aerial inputs		: 75 Ω coaxial	: 75 Ω coaxial
Sensitivity	mono	: ... µV 26dB S/N at 98 MHz	: 1.3 µV 26dB S/N at 98 MHz
at 75Ω △f 75 kHz	stereo	: .. µV 46dB S/N at 98 MHz	: 25 µV 46dB S/N at 98 MHz
Selectivity		: ..dB at 300 kHz off ressonance	: 60dB at 300 kHz off ressonance
Suppression	IF-AM	: ..dB – ..dB	: 80dB – 50dB
	pilot tone	: ..dB	: 50dB
	image frequency	: ..dB (at 106 MHz)	: 75dB
Channel separation	(1kHz mod)	: 40dB	: 40dB
Distortion T.H.D	mono	: 0.25 %	: 0.3 %
	stereo	: 0.7 %	: 0.5 %
Signal/noise	mono	: ..dB	: 74dB
ratio	stereo	: ..dB IEC weighted	: 68dB
tuner: AM section			
Wave ranges	MW	: 522 kHz to 1611 kHz	: 522 kHz to 1611 kHz (585-187 m)
	LW	: 153 kHz to 281 kHz	: 153 kHz to 281 kHz (1960-1067 m)
Sensitivity		: ... µV 26 dB S/N (600 kHz)	: 200 µV 26 dB S/N (600 kHz)
Selectivity		: ..dB at 9 kHz off resonance	: 27dB at 9 kHz off resonance
Suppression	IF	: ..dB	: 55dB
Output		: ..mV	: ..mV
Tuner: Digital section			
Tuning steps	FM/MW/LW	: 50 kHz / 9 kHz / 1 kHz	: 50 kHz / 9 kHz / 1 kHz
Presets	FM/MW/LW	: 29 / 29/ 29 random sequential	: 29 / 29/ 29 random sequential
Amplifier			
Output power		: .. W in .. Ω (FTC) .. W in .. Ω (DIN) .. W in .. Ω .. W in .. Ω (IEC)	: 43 W in 8Ω (1 kHz, D = 10%) 40 W in 4Ω (1 kHz, D ⩽ 1%) 35 W in 8Ω (1 kHz, D ⩽ 1%) 30 W acc. to IEC
Distortion			
T.H.D.		: ⩽0.1% at 1 kHz	: ⩽0.09% at 45W for 1 kHz, 8Ω
Intermodulation		:	: 0.1% at 25 W
Frequency response			
Lineair inputs		: from .. Hz - .. kHz ± ...dB	: from 20 Hz - 30 kHz ± 2dB
Equalized inputs		: from .. Hz - .. kHz ± ...dB	: from 20 Hz - 20 kHz ± 1.5dB
Bass control		: at .. Hz + .. dB to –..dB	: at 80 kHz + 10 dB to –10dB
Treble control		: at .. kHz + .. dB to –..dB	: at 10 kHz + 10 dB to –10dB
Balance control		:	: 0–50dB
Signal/noise ratio			
weighted		:	: 95 dB
Channel separation		: at 1000 Hz ⩾ ..dB	: at 1000 Hz ⩾ 65dB
Input sensitivity		: ... mV at .. kΩ	: 150 mV at 25 kΩ
Phono MD		: 5 mV at 2.2 kΩ (FTC)	: 2.1 mV at 4 kΩ (FTC)
Tuner		: ... mV at .. kΩ (FTC)	: 150 mV at 25 kΩ (FTC)
Tape 1		: ... mV at .. kΩ (FTC)	: 150 mV at 25 kΩ (FTC)
Tape 2/VCR		at 250 Hz-10 kHz ⩾ ..dB	at 250 Hz-10 kHz ⩾ 40dB
CD/CDV		: 500 mV at 1 kΩ (FTC)	: 150 mV at 25 kΩ (FTC)
Aux 1/TV		: ... mV at .. kΩ (FTC)	: 150 mV at 25 kΩ (FTC)
Aux 2/CDV		:	: 150 mV at 25 kΩ
Microphone		:	: 0.5 mV
Outputs			
Tape 1		: ... mV	: 150 mV
Tape 2/VCR		:	: 150 mV
Loudspeakers 2x2		: 8Ω	: 8Ω
Headphones		: 8–1000Ω	: 8–1000Ω
Processor in/out		:	: 150 mV

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

(D)

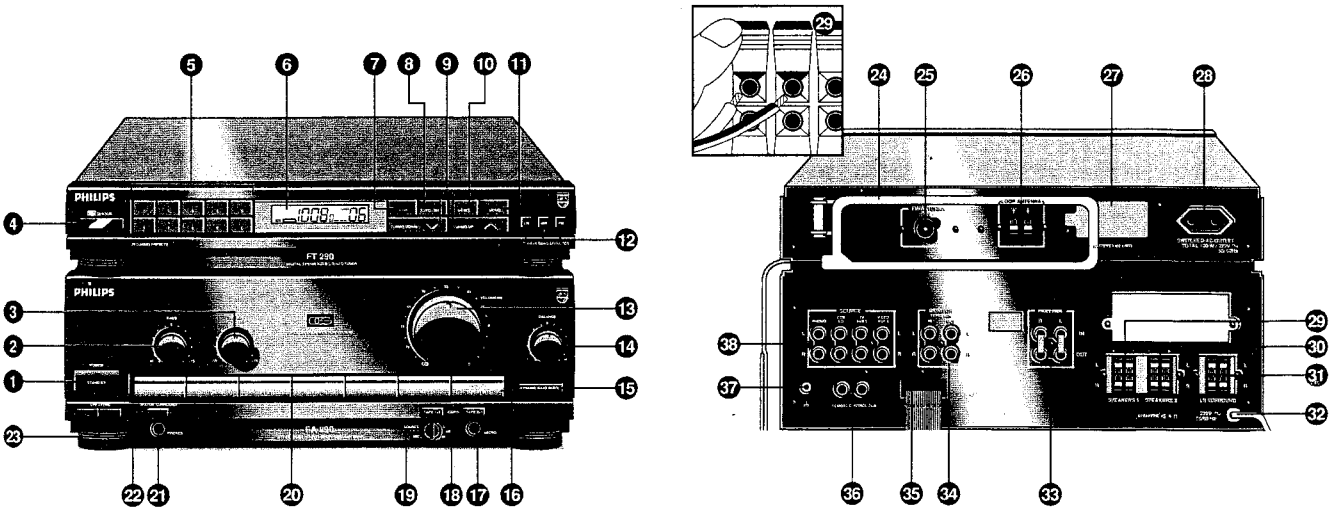
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago identici a quelli specificati.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.



CONNECTIONS AND CONTROLS

1 Stand by button
2 Bass control
3 Treble control
4 Sensor
5 Presets 0-9
6 Display
7 –/-- Button
8 Auto/Man button
9 Tuning up/down buttons
10 Memo button
11 Mono button
12 Waveband buttons
13 Volume control
14 Balance control
15 Dynamic bass boost button
16 Monitor-tape 2/VCR
17 Micro socket
18 Copy buttons
19 Source/mic. control
20 Source selectors
Phono
Tuner
CD
Aux 1/TV
Aux 2/CDV
Tape 1

21 Phones socket
22 Spatial surround button
23 Speakers A/B
24 Loop aerial
25 FM antenna
26 Loop antenna
27 Battery
28 Switched AC outlet
29 Speakers 1
30 Speakers 2
31 LS surround
32 Mains lead
33 Processor in/out
34 Monitor-tape 2/VCR sockets
35 Tape 1/cass
36 Remote control
37 Ground terminal
38 Source input sockets for:
Phono
CDV/CD
TV/aux 1
Video/aux 2

(GB) Servicing hints:

1. The bass, treble and balance buttons cannot be removed directly from the front plate.
   The buttons are fixed on the back of the front (see exploded view).
   Note: When mounting the operating board, one should take care that the buttons are in "0" position and the potentiometers in mid-position (see exploded view).
2. Volume button 408 has been provided with a led indicator.
   Fig. 1 shows the path of the 2 wires to the led.
3. Fuses SI1 and SI2 are situated on the trafo board. They can be reached by removing lid 518 from rear panel 521.
4. Decasing instructions in connection with the accessibility of the printed-wiring boards for measurement (see also the exploded view).

a. The amplifier supply board can be reached by removing bottom plate 507 (8 screws). The 4 feet of the set need not be removed for this.

b. The plug source selector board can be reached by first carrying out step a. and then disconnecting the bottom rear panel 521 (4 screws).

c. The RF-IF board, the operating board, the volume control board and the trafo board (partly) can be reached by removing top plate 506 (2 screws on the back). Then lift the back of the top plate a little and pull it backward. When mounting the top plate, place it flat on the set and push it forward.

5. The printed-wiring boards have been provided with a connector at several places (such as 2A, 4A, etc.).
   Fig. 2 indicates the mounting and demounting of the wiring.

(NL) Service wenken:

1. De knoppen bass, treble en balance zijn niet rechtstreeks vanaf het voorfront te verwijderen. De knoppen zitten aan de achterkant van het front bevestigd (zie exploded view).
   Opmerking: Bij montage van de "operating panel" moet men er op letten, dat de knoppen in de "0" positie en de potentiometers in de middenstand staan (zie exploded view).
2. De volume knop 408 is uitgevoerd met een ledindicator.
   Fig. 1 geeft de loop van de 2 draden naar de led aan.
3. De zekeringen SI1 en SI2 zitten op het "trafo panel". Deze zijn te bereiken door deksel 518 van het achterpaneel 521 te verwijderen.
4. Uitkastvoorschrift i.v.m. bereikbaarheid printen voor het meten (zie ook exploded view).

a. De "Amplifier-supply panel" is te bereiken door onderplaat 507 (8 schroeven) te verwijderen. Hierbij kunnen de 4 voetjes van het apparaat blijven zitten.

b. De "Plug source selector panel" is te bereiken door eerst punt a. uit te voeren en daarna het onderste achterpaneel 521 (4 schroeven) los te koppelen.

c. De "RF-IF panel", de "Operating panel", de "volume control panel" en de "Trafo panel" (gedeeltelijk) zijn te bereiken door de bovenplaat 506 (2 schroeven achterzijde) te verwijderen. Vervolgens de achterzijde van de bovenplaat iets optillen en naar achter trekken. Bij montage de bovenplaat vlak op de apparaat leggen en vervolgens naar voren schuiven.

5. De printen zijn op diverse plaatsen met een connector uitgevoerd (zoals 2A, 4A etc.).
   Fig. 2 geeft de montage en de demontage van de bedrading aan.

(F) Conseils service

1. Les boutons "bass", "treble" et "balance" ne peuvent être enlevés directement par l'avant de l'appareil. Ils sont fixés à l'arrière du frontal (voir vue éclatée).
   Remarque: au montage du operating panel, veillez à ce que les boutons se trouvent en position "0" et que les potentiomètres soient en position intermédiaire (voir vue éclatée).
2. Le bouton du volume 408 possède un indicateur lumineux.
   En fig. 1 on voit le parcours des deux fils vers la LED.
3. Les fusibles SI1 et SI2 sont montés sur la carte du transfo et sont accessibles après avoir enlevé le couvercle 518 du panneau arrière 521.
4. Instructions de dépose (eu égard à l'accessibilité de des cartes en matière de mesure) (voir aussi à la vue éclatée).

a. la 'amplifier-supply panel' est accessible après avoir enlevé le panneau du fond 507 (8 vis). Les quatre pieds de l'appareil peuvent rester en place.

b. la 'plug source selector panel' est accessible après avoir excécuté le point a. et détacher par la suite le panneau arrière inférieur 521 (4 vis).

c. Les 'RF-IF panel', 'Operating panel', 'volume control panel' et 'trafo-panel' (partiellement), sont accessibles après avoir enlevé le panneau supérieur 506 (2 vis à l'arrière). Soulever ensuite un peu l'arrière du panneau supérieur et le tirer par l'arrière. Au montage, poser la plaque supérieure bien à plat sur l'appareil et la faire glisser vers l'avant.

5. Les cartes possède un connecteur en divers endroits (tels les 2A, 4A etc.).
   En Fig. 2 on trouvera le montage et la démontage du câblage.

(D) Servicehinweise:

1. Die Knöpfe 'bass', 'treble' und 'balance' lassen sich nicht unmmittelbar von der Vorderfront an beseitigen. Die Knöpfe sind auf der Rückseite der Frontplatte befestigt (siehe Explosionsansicht).
   Anmerkung: Beim Einbau der 'operating panel' ist zu beachten, dass sich die Knöpfe in der Nullstellung und die Potentiometer in der Mittelstellung befinden (Sieh Explosionsansicht).
2. Der Lautstärkerreglerknopf 408 ist mit einem Leuchtdiodenanzeiger ausgestattet. Bild 1 zeigt den Gang der 2 Drähte zu der Leuchtdiode.
3. Die Sicherungen SI 1 und SI2 befinden sich auf der 'trafo panel'. Sie sind zugänglich durch Abnahme des Deckels 518 von der Rückplatte 521.
4. Ausbauvorschrift i.b.a. Zugänglichkeit den Leiterplatten zum Mesen (siehe auch Explosionsansicht).

a. Die 'amplifier-supply panel' ist zugänglich durch Beseitigung der Unterplatte 507 (8 Schrauben). Dabei können die 4 Füsschen des Geräts an ihrer Stelle verbleiben.

b. Die 'plug source selector panel' ist zugänglich, indem zuerst Punkt a. durchgeführt wird und anschliessend die untere Rückplatte 521 (4 Schrauben losgekuppelt wird.

c. Die 'RF-IF panel', die 'operating panel', die 'volume control panel' und die 'trafo panel' (teilweise) sind zugänglich durch abnahme der Oberplatte 506 wenig anheben und rückwärts ziehen. Beim Einbau die Oberplatte flach auf das Gerät legen und dann vorwärts schieben.

5. Die Leiterplatten sind an mehreren Stellen mit einem Steckverbinder ausgeführt (wie etwa 2A, 4A usw.). Bild 2 zeight den Einbau und den Ausbau der Verdrahtung.

(I) Consilgi utili

1. Le manopole bass, treble e balance non sono direttametnte estraibili dalla parte anteriore del mobiletto, poiché queste manopole sono state fissate alla parte poteriore di questa facciata (si v. a proposito la sezione esplosa).
   Attenzione: però che l'installazione dell'operating panel va accomagnata da altre due condizioni: l'azzeramento di tutte le manopole è indispensabile che i potenziometri si trovino a metà strada (si v. a proposito la sezione esplosa).
2. Il controllo volume 408 è stato munito di un indicatore LED. Fig. 1 indica il collegamento di due cavi con il LED.
3. Le valvole di sicurezza SI1 e SI2 sono situate nel trafo panel e si trovano rimuovendo il coperchio 518 dal pannello posteriore 521.
4. Si prega di prendere in atto le seguenti regole quando di passa allo smontaggio dei seguenti pezzi: (queste regole sono in relazione alla portata degli stampati che esegue operazione di misura (si v. appunto la sezione esplosa)).

a. Svitando otto viti dal basso 507 si trova il "Amplifier-supply panel", tenendo a mente che i quattro piedini dell'apparecchio possono rimanere al loro posto.

b. Il "plug source selector panel" si trova eseguendo prima a, e svitando successivamente 4 viti dall pannello posteriore 521.

c. Rimuovendo due viti posteriori dalla parte superiore 506 del mobiletto si trovano il "RF-IF panel", l' "operating panel", il "volume control panel", nonché il "Trafo panel" (parzialmente). Sollevare un po' la parte posteriore del mobiletto di sopra e tirarlo indientro. Durante l'installazione è indicato mettere la parte superiore diritta sull'aparecchio e, conseguentemente tirarla avanti.

5. Gli stampati sono state munite in diversi posti di un connettore, p.es. 2A, 4A etc.
   Fig. 2 indica come attaccare e staccare i cavi.

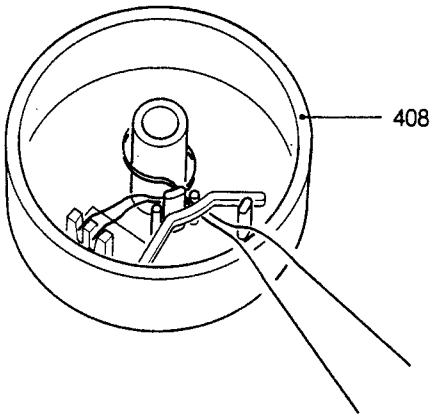


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Fig. 1

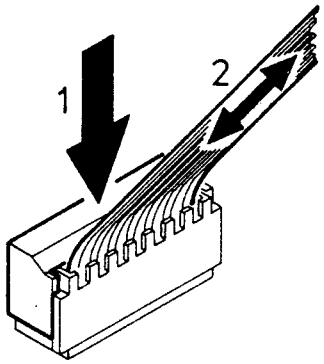


Fig. 2

(GB) SERVICE TEST PROGRAMME

The microprocessor contains a test programme which carries out the following chapters fully automatically when switched on.

1. Software version of the display
2. RAM test
3. Display test

Switching on the test programme

The test mode can be selected by depressing the FM and Phono buttons simultaneously.
The set should be in the stand–by mode for this.
The test programme will not be started if the microprocessor is defective or if a few basic conditions are not fulfilled.
In case of a supposed defect in the control section, it is therefore recommended that you first check the supply voltage, the function keys, the clock signal and the reset pulse.

Switching off the test programme

a. The test programme cannot be left during the testing of chapters 1 and 2.
b. The test programme can be left during the testing of chapter 3 in the following way:
Press the tuning up button for 1 second.

1. Software version of the display

After the test programme is switched on, the software version of the display (E.G. 1) appears in the preset field (digit 1 Fig. 4) after 2 seconds.
After about 1 second the software version will have disappeared again and the RAM test will start automatically.

2. RAM test

The RAM test is now carried out fully automatically.
If the test passes off positively, a "1" will be shown in the preset field (digit 1 Fig. 4) for 1 second. If the test does **not** pass off positively, a "0" will be displayed in the preset field for 1 second.
After this the display test starts automatically. (Also if the RAM test was **not** positive).

3. Display test

After the RAM test has been completed, the display test starts with a blank display.
The display is automatically tested according to table 1.
All segments mentioned in the table will be visible for 1 second. If table 1 has been completed, all segments of the display will remain on (see fig. 4) until the test is ended by means of the tuning up button (press it for 1 second).
Then the set returns to the stand–by mode.

Note: as already described, this test can be ended prematurely during the automatic testing by pressing the tuning up button (for 1 second). In that case the set will adopt the stand–by mode again.

(NL) SERVICE TESTPROGRAMMA

De microprocessor bevat een testprogramma, welke na het inschakelen de volgende hoofdstukken volledig automatisch afwerkt.

1. Software versie van de display
2. Ram-test
3. Display-test

Inschakelen testprogramma

Het apparaat kan in de testmode worden geplaatst door gelijktijdig de toetsen "FM" en "phono" in te drukken.
Het apparaat moet hierbij in de stand-by mode staan. Het stestprogramma wordt niet opgestart als de microprocessor defect is of als niet aan enkele basisvoorwaarden wordt voldaan.
Controleer dan ook eerst bij een vermeend defect in het bedieningsgedeelte de voedingsspanning, de functietoesten, het clock-signaal en de resetpuls.

Uitschakelen testprogramma

a. Het testprogramma kan tijdens het testen van de hoofdstukken 1 en 2 niet verlaten worden.
b. Het testprogramma kan tijdens het testen van hoofdstuk 3 wel verlaten worden en wel als volgt:
Druk de toets tuning up 1 seconde in.

1. Software versie van het display

Na het inschakelen van het testprogramma verschijnt in het preset veld (digit 1 Fig. 4) na 2 seconden de software versie van het display (bijv. 1). Na ongeveer 1 seconde is deze weer verdwenen en start automatisch de ram-test.

2. Ram-test

De Ram-test wordt nu dus ook volledig automatisch afgewerkt. Indien de test positief verlopen is, zal gedurende 1 seconde in het preset veld (digit 1 Fig. 4) een "1" gegeven worden. Indien **niet** positief verlopen, dan zal gedurende 1 seconde in het preset veld een "0" gegeven worden.
Hierna start automatisch de display test. (Ook al is de Ramtest **niet** positief verlopen).

3. Display-test

Na beëindiging van de Ram-test start de display-test met een blank display.
Achtereenvolgens wordt het display volgens tabel 1 automatisch getest.
Alle in de tabel genoemde segmenten zijn één seconde zichtbaar. Indien alles volgens de tabel 1 doorlopen is blijft het display met alle segmenten aan staan (zie Fig. 4), totdat de test d.m.v. de tuning up toets (1 seconde indrukken) beëindigt wordt.
Het apparaat komt dan weer in de stand-by mode.

Opmerking: zoals reeds beschreven kan deze test gedurende het automatisch testen d.m.v. de tuning up toets (1 seconde indrukken) eerder beëindigd worden.
Het apparaat komt dan weer in de stand-by mode.

(F) PROGRAMME TEST DE SERVICE

Le microprocesseur comporte un programme de test qui se déroule automatiquement après que l'appareil est mis en fonction. On aura donc:

1. Logiciel de l'afficheur
2. Test de la RAM
3. Test de l'affichage

Mise en route du programme de test

L'appareil sera mis au mode de test par pression simultanée des touches "FM" et "phono", à condition que l'appareil est en position de veille.
Le programme de test n'est pas démarré si le microporcesseur est défectueux ou si certaines conditions de base ne sont pas remplies.
A cet effet, vérifier, en cas de suspicion de défectuosité dans la section de commande, avant tout, la tension d'alimentation, les touches de fonction, le signal d'horloge et l'impulsion de remise a zéro.

Mise hors fonction du programme de test

a. Il n'y a pas moyen de quitter le programme de test pendant les tests des chapitres 1 et 2.
b. Il y a moyen de quitter le programme de test pendant le test du chapitre 3, il suffit d'appuyer sur la touche "tuning up" pendant 1 seconde.

1. Logiciel de l'afficheur

La version du logiciel de l'afficheur apparaît 2 secondes après la mise en service du programme de test dans le champ de préréglage ('digit' 1 Fig. 4). (par exemple 1). Après env. 1 sec. elle disparaît et le test de la RAM débute automatiquement.

2. Test de la RAM

Le test de la RAM est alors entièrement exécuté.
Si le test se déroule positivement, un "1" apparaîtra pendant une seconde ('digit' 1 Fig. 4) dans le champ de remise à zéro. Si le test n'est **pas** positif, un "0" apparaîtra pendant 1 seconde sur le même champ.
Ensuite, le test de l'afficheur commence immédiatement (même si le test de la RAM n'a pas été positif).

3. Test de l'afficheur

Après que s'est déroulé le test de la RAM, le test de l'afficheur débute par un afficheur vièrge.
Après quoi, l'afficheur est automatiquement testé dans l'ordre du tableau 1.
Tous les segments désignés dans le tableau deviennent visibles pendant une seconde. Lorsque tout est passé en revue dans la séquence du tableau 1, tous les segments de l'afficheur restent allumés
(voir fig. 4) jusqu'à ce que qu'il soit mis fin au test en pressant la touche "tuning up" pendant 1 sec.
L'appareil revient en position de veille.

Remarque: comme il avait déjà été dit plus haut, il peut être mis fin prématurément à ce test par pression (1 sec.) de la touche "tuning up". L'appareil revient alors au mode de veille.

(D) SERVICE PRÜFPROGRAMM

Der Mikroprozessor enthält ein Prüfprogramm, das nach Einschalten die folgenden Kapitel völlig automatisch erledigt.

1. Software-Ausführung des Display
2. RAM-Prüfung
3. Display-Prüfung

Einschalten des Prüfprogramms

Das Gerät kann in den Prüfbetrieb gebracht werden, dadurch dass gleichzeitig die Tasten 'FM' und 'phono' gedrückt werden.
Das Gerät muss dann im Bereitschaftsbetrieb sein. Das Prüfprogramm wird nicht angefahren, wenn der Mikroprozessor Schaden genommen hat, oder wenn nicht einige Grundbedingungen erfüllt werden.
Bei einem vermeintlichen Mangel im Bedienungsteil sind denn auch zuerst die Versorgungsspannung, die Funktionstasten, das Taktsignal und der Rücksetzimpuls zu überprüfen.

Ausschalten des Prüfprogramms

a. Das Prüfprogramm kann während dem Prüfen der Kapitel 1 und 2 nicht verlassen werden.
b. Das Prüfprogramm kann während dem Prufen von Kapitel 3 wohl verlassen werden, und zwar wie folgt: Die Taste 'tuning up' 1 Sekunde drücken.

1. Software-Ausführung des Display

Nach Einschalten des Prüfprogramms erscheint im 'preset'-Feld ('digit' 1 Bild 4) nach 2 Sekunden die Software-Ausführung des Display (z.B. 1). Nach etwa 1 Sekunde ist sie wieder verschwunden und läuft automatisch die RAM-Prüfung an.

2. RAM-Prüfung

Die RAM-Prüfung wird nun also auch vollautomatisch erledigt.
Wenn die Prüfung positiv abgelaufen ist, wird für 1 Sekunde in dem 'preset'-Feld ('digit' 1 Bild 4) eine '1' gegeben werden. Falls **nicht** positiv abgelaufen, so wird für 1 Sekunde in dem 'preset'-Feld eine '0' gegeben werden.
Darauf läuft automatisch die Displayprüfung an (auch wenn die RAM-Prüfung **nicht** positiv abgelaufen ist).

3. Display-Prüfung

Nach Abschluss der RAM-Prüfung läuft die Display-Prüfung mit einem blanken Display an. Nacheinander wird das Display gemäss Tabelle 1 automatisch geprüft. Alle in der Tabelle aufgeführten Segmente sind 1 Sekunde sichtbar. Wenn alles gemäss Tabelle 1 durchlaufen ist, ist das Display mit sämtlichen Segmenten (siehe Bild 4) nach wie vor eingeschaltet, bis die Prüfung mittels der Taste 'tuning up' (1 Sekunde drücken) beendet wird.
Das Gerät gelangt dann wieder in den Bereitschaftsbetrieb.

Anmerkung: Wie bereits beschrieben, kann diese Prüfung während dem automatischen Prüfen mittels der Taste 'tuning up' (1 Sekunde drücken) früher beendet werden. Das Gerät gelangt dann wieder in den Bereitschaftsbetrieb.

(I) PROGRAMMA PROVA DI SERVIZIO

Il microprcessore è stato munito di un programma de prova, che una volta programmato esegue automaticamente le seguenti fasi:

1. Visualizzazione del display in versione software
2. Prova Ram
3. Prova display

Azionare il programma

E' possibile mettere l'apparecchio in poszione "testmode", schiacciando contemporaneamente i pulsanti FM e Phono, dopo di che si lascia l'apparecchio in posizione stand-by. Il programma di prova non verrrà eseguito qualora il microprocessore sia difettoso o qualora non vengano rispettate le condizioni di base. Se ciò si verifica, è indicato controllare se c'è un guasto nel reparto di comando e, più precisamente nel cavo di alimentazione, nei tasti, nel timer o nell'autoreverse.

Disazionare il programma di prova

Va notate che:
a. questo programma non va interrotto durante le fasi (1) e (2).
b. questo programma, al contrario di quanto descritto sopra, è suscettibile di cambiamenti schiacciando il pulsante tuning up per la durata di un secondo.

Table 1

	● Decimal point (DP)
	b and e of digit 3 (see Figs. 3, 4)
	g of digit 3 (see Figs. 3, 4)
FM, MHz	a, c, d and f of digit 3 (see Figs. 3, 4)
MW, KHz	
LW,KHz	
STEREO	
MONO	
AUTO	
MAN	
MEMO	
TUNED	
000 00	
1111 11	
222 22	
333 33	
444 44	
555 55	
666 66	
777 77	
888 88	
999 99	

All segments except decimal point (DP) go on (see Fig. 4)

1. La vizualizzazione del display in versione software

Dopo che il programma di prova è stato azionato, a destra del display appara dopo per due secondi il display in versione software ('digit 1' Fig. 4). Dopo un secondo la visualizzazione sparisce nuovamente ed ha automaticamente inizio la prova Ram.

2. La prova Ram

Anche questa prova viene eseguita automaticamente. Se la prova procede senza intralci, si vedrà apparire il numero 1 ('digit 1' Fig. 4) a destra del display, se invece ci sono problemi tecnici, si vedrà apparire, sempre a destra del display (anche se la prova Ram ha avuto esiti negative).

3. La prova display

Si noti che, successivamente alla prova Ram, la prova display dà a vedere un disaplay "bianco", dopo di che il display viene controllato automaticamente secondo il pocedimento spiegato nella tabella n° 1.
Se ogni operazione è stata eseguita secondo la tabella n° 1, i dati del display resteranno visibili (si v. aproposito Fig. 4), finché la prova non verrà conclusa schiacciando per un secondo il tasto tuning up. L'apparecchio, automaticamente, si ritrova in posizione stand-by.

Si noti: però che questa prova durante la fase automatica può essere eseguita prima, schiacciando per un secondo il pulsante tuning up. L'apparecchio, automaticamente, riprende la posizione stand-by.

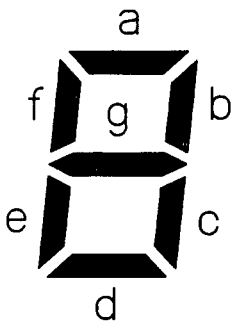


Fig. 3

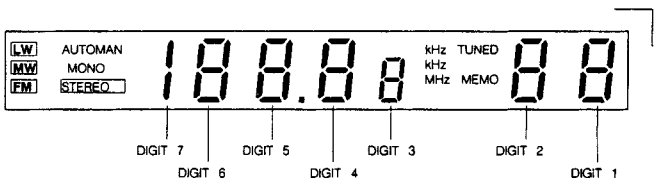
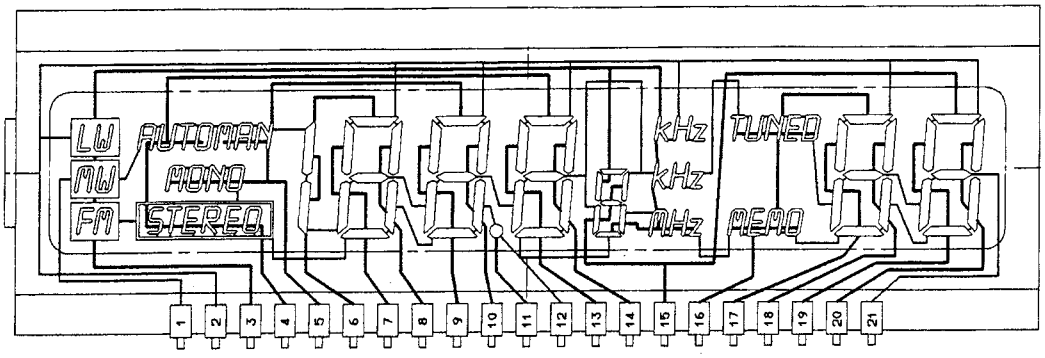
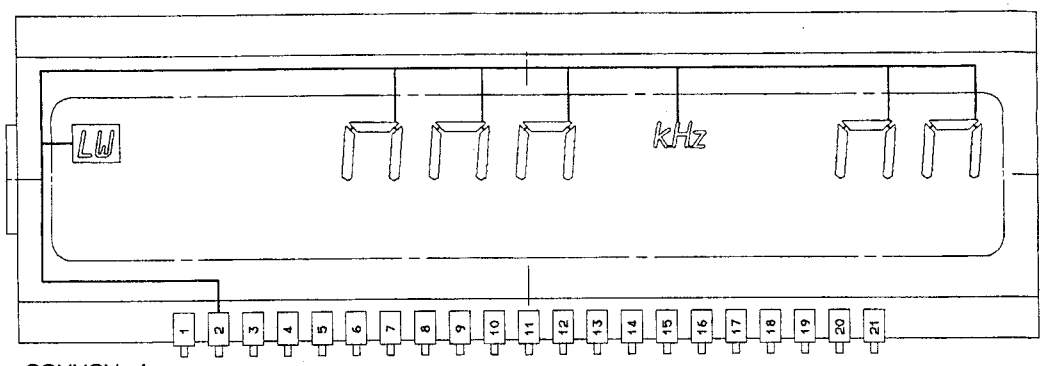


Fig. 4

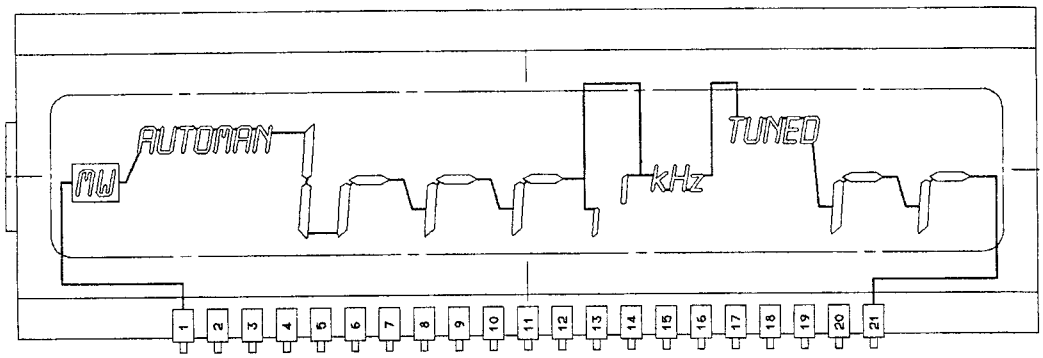
MDA.02268
T-08 932



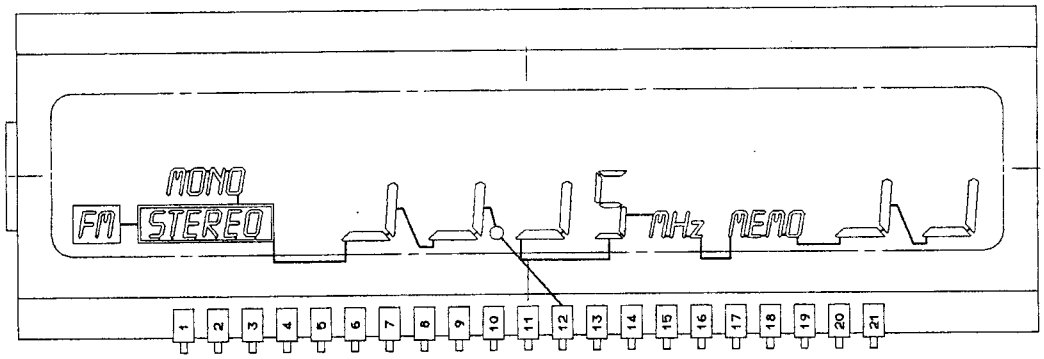
PIN 3 ... 11;
13 ... 20



COMMON 1



COMMON 2



COMMON 3

PIN-nr.	Common 1	Common 2	Common 3
1		Common 2	
2	Common 1		
3	LW kHz	MW kHz	FM MHz a3 c3 d3 f3
4	a4	Auto	Stereo
5	a5	Man	Mono
6	a6	b7 c7	
7	f6	e6	d6
8	b6	g6	c6
9	f5	e5	d5
10	b5	g5	c5
11			Decimal point
12			Common 3
13	f4	e4	d4
14	b4	g4	c4
15	a1	b3 e3	g3
16	a2	Tuned	Memo
17	f2	e2	d2
18	b2	g2	c2
19	f1	e1	d1
20	b1	g1	c1
21		Common 2	

ELECTRICAL ADJUSTMENTS AND CHECKS

General

- For the HF adjustments, the injected signals should be kept as small as possible.
- Connect the frame aerial in case AM is used.
- The AM IF amplifier is adjusted with a wobbulator signal of approx 600 kHz having a sweep of 250 kHz at a rhythm of 50 Hz.

Measuring equipment used

- Power-supply equipment
- Oscilloscope
- DC millivoltmeter
- AC millivoltmeter
- Frequency counter
- Distortion meter

ELUCIDATIONS

1 Place the top of the response curve in the centre of the screen by displacing the wobbulating frequency.

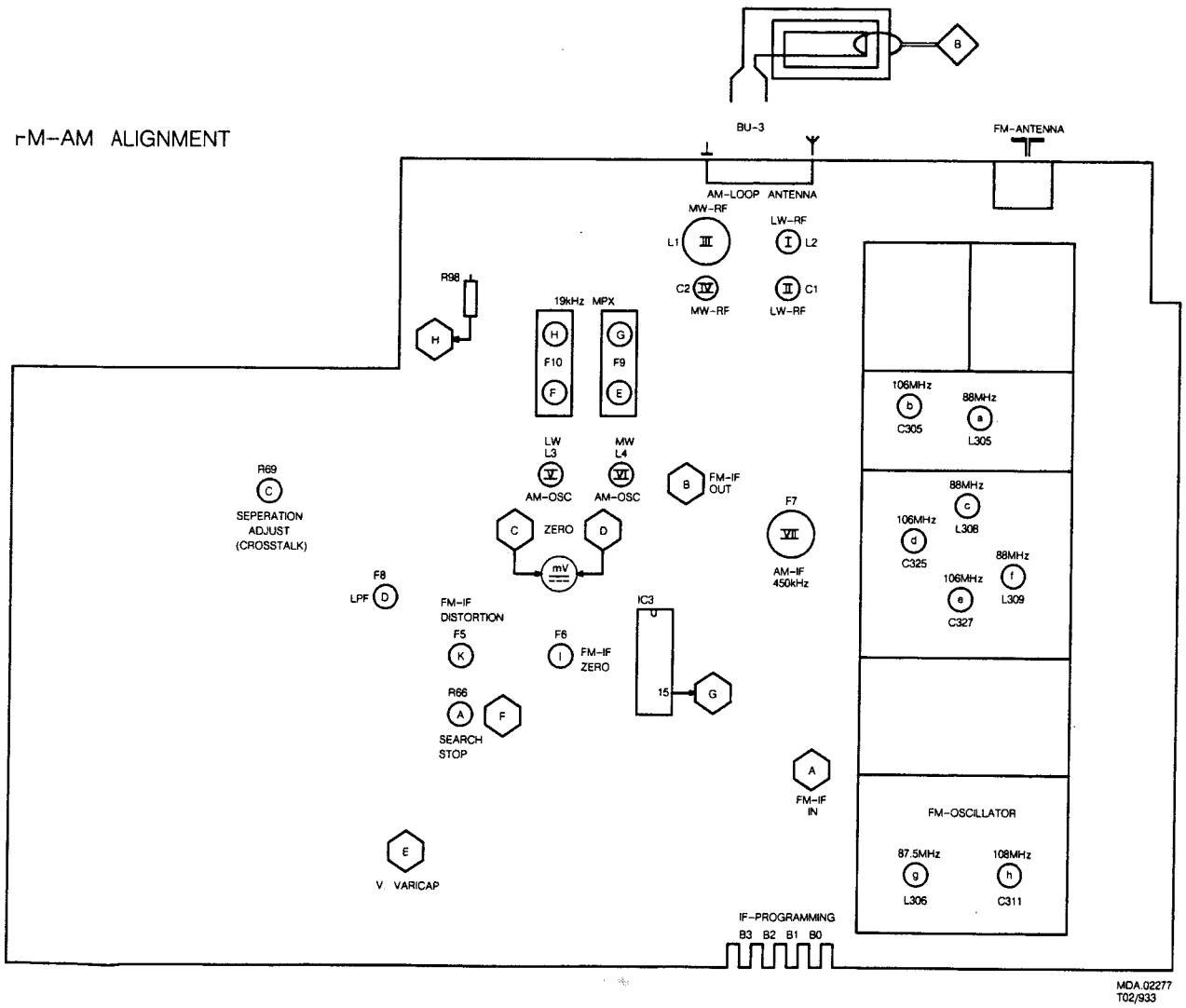
2 Adjust for maximum height and symmetry.

3 Adjust for minimum THD distortion on the distortion meter.

⬡ Measuring point

◯ Trimming element

FM-AM ALIGNMENT



SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	REMARKS DETUNE	ADJUST	OSCILLOSCOPE OR A.C. METER	D.C. METER INDICATOR
FM-IF/T.H.D.							
FM Stereo	98 MHz △f 75 kHz 1 mV	FM antenna	Display 98.00 MHz				(F) max.
	fo=f generator △f=75 kHz 1 mV				(I) F6		(C) (D) 0 V ± 30 mV
					(K) F5		(H) min. distortion 3
FM-RF (Oscillator)							
FM	108 MHz 1 kHz mod. △f=75 kHz	FM antenna	Display 108.00 MHz		(h) C311	max. ~ (H)	(E) 8.5 V ⎓
	87,5 MHz 1 kHz mod. △f=75 kHz		Display 87.50 MHz		(g) L306		(E) 2.5 V ⎓
FM-RF							
FM	106 MHz 1 kHz mod. △f=75 kHz	FM antenna	Display 106.00 MHz		(b) C305 (d) C325 (e) C327	max. ~ (H)	
	88 MHz 1 kHz mod. △f=75 kHz		Display 88.00 MHz		(a) L305 (c) L308 (f) L309		

↕ Repeat -Herhalen - Répéter - Wiederholen - Ricomminciare - Repetera - Gentage - Gjentagelse - Toista

(GB) SERVICING HINTS

1. ESD

All ICs and many other semi-conductors are sensitive to electrostatic discharges (ESD).
Careless treatment during repairs may drastically reduce life.
When repairing, make sure that you are connected, via a wristlet, the same potentional as the chassis of the set.
Keep components and tools at this potential as well.
See Service information A86-1000 for this.

2. Display DP401

The outputs of the display drivers are not protected against external overvoltages! When testing the display with external voltages, you should interrupt the connection with IC401.

3. FM IF offset

The ceramic resonators (F1+F4) have different intermediate frequencies as a result of tolerances. Dependent on the IF jumper has to be applied or a bridge has to be opened. B0+B3 (see table).
The resonators have been provided with a colour code.

4. Ceramic resonators F1 + F4

When replacing one of the ceramic resonators, take care that the colour codes of all three resonators are the same.

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	REMARKS DETUNE	ADJUST	OSCILLOSCOPE OR A.C. mV METER	D.C. METER INDICATOR
FM SEARCH STOP							
FM Stereo	106 MHz 15 µV	FM antenna	106.0o MHz		Ⓐ R66		Ⓕ 0.7 V +0.05 V
FM - STEREO DECODER CROSSTALK							
FM Stereo	106 MHz 45 % L mod. 1 kHz 9 % pilot 1 mV	FM antenna	106.0o MHz		Ⓒ R69	Ⓗ min ~ (1 kHz)	
FM - PILOT - FILTERS							
FM Stereo	106 MHz 1 mV 9 % pilot	FM antenna	106.0o MHz		Ⓔ F9 Ⓕ F10	Ⓗ min ~ 19 kHz	
					Ⓖ F9 Ⓗ F10	Ⓗ min ~ 38 kHz	

(NL) SERVICEWENKEN

1. ESD

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.
Zie hiervoor service information A86-1000.

2. Display DP401

De outputs van de display drivers in IC401 zijn niet beveiligd tegen externe overspanningen! Bij het testen van de display met externe spanningen dienen de verbindingen met IC401 onderbroken te worden.

3. FM middenfrequent offset

De keramische resonatoren (F1+F4) hebben verschillende middenfrequenties, als gevolg van toleranties. Afhankelijk van de middenfrequentie dient een jumper worden aangebracht of een brug worden geopend.
B0+B3 (zie tabel).
De resonatoren zijn voorzien van een kleurcode.

4. Keramische resonatoren F1 + F4

Bij het vervangen van een van de keramische resonatoren dient men erop te letten dat de kleurcode van alle drie resonatoren dezelfde is.

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	REMARKS DETUNE	ADJUST	OSCILLOSCOPE OR A.C. METER	D.C. METER INDICATOR
AM-IF							
MW	558 kHz △f 10 kHz (50 Hz)	B	Display 558 kHz			Center fo G 1	
	fo=f generator △f 10 kHz (50 Hz)				VII F7	Symetrical MAX. fo G 2	
AM-RF (Oscillator)							
MW	522 kHz 1 kHz mod. m=30%	B	Display 522 kHz		VI L4	H max ~	E 1,0 V ⎓
LW	153 kHz 1 kHz mod. m=30%		Display 153 kHz		V L3		E 1,8 V ⎓
AM-RF							
MW	1449 kHz 1 kHz mod m=30%	B	Display 1449 kHz		IV C2	H max ~	
	558 kHz 1 kHz mod m=30%		Display 558 kHz		III L1		
LW	261 kHz 1 kHz mod. m=30%		Display 261 kHz		II C1		
	162 kHz 1 kHz mod m=30%		Display 162 kHz		I L2		

↕ Repeat -Herhalen - Répéter - Wiederholen - Ricomminciare - Repetera - Gentage - Gjentagelse - Toista

(F) CONSEILS PRATIQUES

1. ESD

Tous les circuits intégrés et de nombreux sémi-conducteurs sont sensibles aux décharges électrostatiques.
Le manque de soin apporté aux réparations est susceptible de réduire considérablement la durée de vie. Veillez pendant les réparations à être connecté par l'intermédiare d'un bracelet à résistance au même potentiel que la masse de l'appareil.
Maintenez également les composants et les accessoires à ce même potentiel. Voir à ce sujet l'information du service après-vente A86-1000.

2. Afficheur DP401

Les sorties des circuits de commande d'affichage ne sont pas protégés contre les surtensions extérieures! Si l'on teste l'afficheur avec des tensions extérieures, on devra couper les connexions avec IC401.

3. Offset FM-IF

Les résonateurs céramique (F1 à F4) possèdent des fréquences intermédiaires différentes du fait de tolérances.
Indépendemment de la fréquence intermédiaire, un câble de pontage doit être monté entre B0 - B3 (voir tableau).
Les résonateurs ont un code de couleur.

4. Résonateurs céramiques F1 + F4

Lors du remplacement de l'un des résonateurs céramiques, on ne devra pas oublier que les trois résonateurs ont la même couleur code.

(D) SERVICE HINWEISE

1. ESD

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.
Siehe dafür die Service Information A86-1000.

2. Display DP401

Die 'outputs' der Displaytreiber IC401 sind nicht vor externen Überspannungen geschutzt! Beim Prüfen des Displays mit externen Spannungen müssen die Verbindungen mit IC401 unterbrochen werden.

3. FM-ZF-Offset

Die Keramikkondensatoren (F1 + F4) weisen infolge der Toleranzen unterschiedliche Zwischenfrequenzen auf.
Durch die Zwischenfrequenz bedingt muss ein Brückendraht ('jumper') angebracht oder eine Brücke B0+B3 geöffnet werden (siehe Tabelle).
Die Resonatoren sind mit einem Farbcode versehen.

4. Keramikresonatoren F1 + F4

Beim Auswechseln eines der Keramikresonatoren ist zu beachten, dass der Farbcode aller drei Resonatoren der gleiche ist.

(I) CONSIGLI PER LA RIPARAZIONE

1. ESD

Tutti gli IC e molti altri semiconduttori sono sensibili alle scariche elettrostatiche (ESD).
la non attenzione durante la riparazione può ridurre drasticamente la vita di questi componenti.
Durante la riparazione bisognal aver cura di essere collegati allo stesso potenziale dello chassis dell'apparecchio. Teneri i componenti e gli attrezzi a questo potenziale.
Verdere l'informazione di srvizio A-86-1000.

2. Display DP401

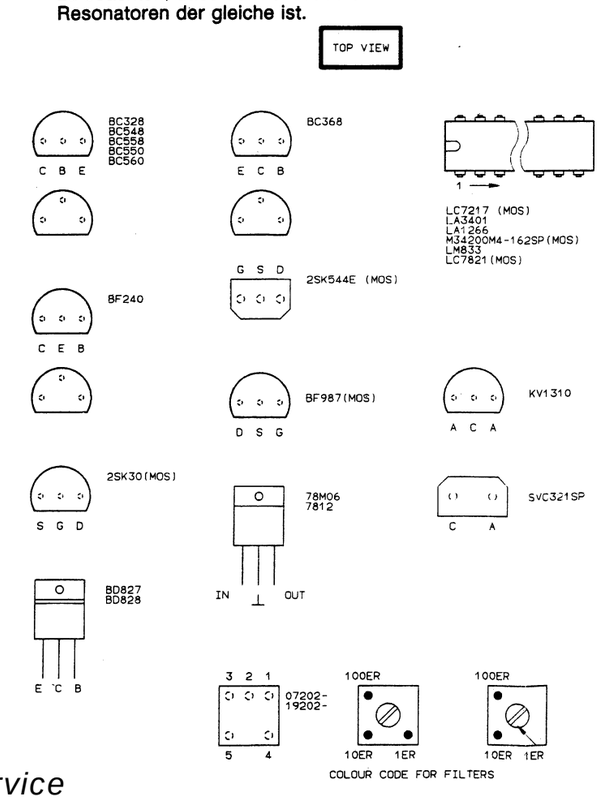
Le uscite del pilota display non sono protette contro sovraccarichi esterni. Quando si eseguono controlli sul display con tensioni esterne, interrompere i collegamenti con IC401

3. Offset FM-FI

I resonatori ceramici (da F1 a F4) hanno frequenze intermedie diverse dal fatto delle toleraze diverse. Indipendentemente dalla frequenza intermedia, un filo di ponticello deve essere montato o un ponticello, aperto fra B0+B3 (vedi tabella).

4. Risonatori ceramici F1 + F4

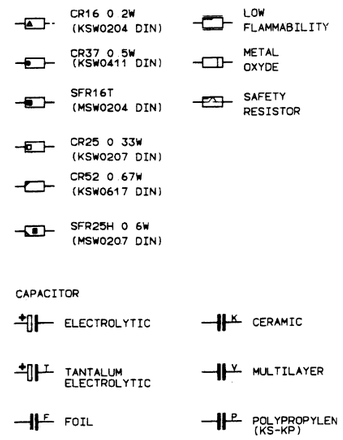
Quando si sostiuisce uno dei risonatori ceramici, assicurarsi che il codice colore di tutti e tre i risonatori sia.



FM-IF program

IF (MHz)	Jumper B3	B2	B1	B0	Filter color
10.6500	0	1	0	0	Black
10.6750	0	1	1	0	Blue
10.7000	1	0	0	0	Red
10.7225	1	0	1	0	Orange
10.7500	1	1	0	0	White

0 = jumper open 1 = jumper closed



MC-Service

⚠ ABSOLUTELY NECESSARY FOR THE SAFETY OF THE SET. THESE COMPONENTS MEET THE SAFETY REQUIREMENTS ACCORDING TO VDE OR IEC RESP AND MUST BE REPLACED BY PARTS OF SAME SPECIFICATION ONLY

RF+IF PANEL 1

FM ANTENNA SECTION

AM ANTENNA SECTION

FM-OSCILLATOR SECTION

PLL SYNTHESIZER AND IF COUNTER

LOOP-FILTER

MAGNETIC COUPLING

DC-VOLTAGES MEASURED AGAINST GROUND
WITHOUT ANTENNA SIGNAL
AND TUNED TO A DEAD SPOT, EXCEPT FM STEREO

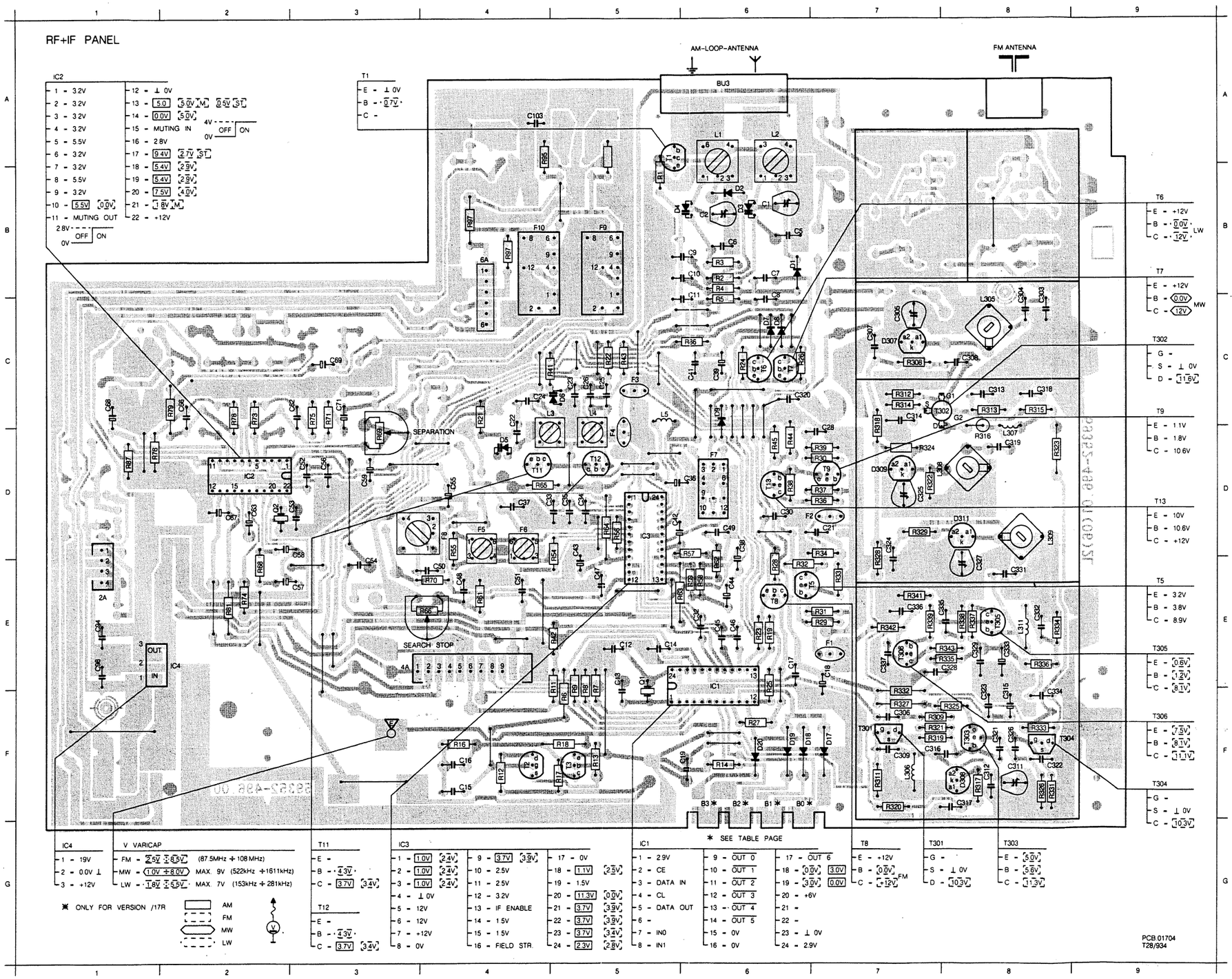
AM
FM
MW
LW
FM STEREO
STEREO

to RF+IF panel 2

MC-Service

CS 24 716

RF+IF PANEL



2A	E 1	D9	C 6	R78	C 2		
4A	E 3	F1	E 7	R79	C 2		
6A	B 4	F10	B 4	R8	E 5		
B0	F 6	F2	D 7	R81	E 2		
B1	F 6	F3	C 5	R86	C 6		
B2	F 6	F4	C 5	R87	D 1		
B3	F 6	F5	D 4	R9	E 5		
BU3	A 6	F6	D 4	R95	A 4		
C1	B 6	F7	D 6	R97	B 4		
C10	B 6	F8	D 4	R97	B 4		
C103	A 4	F9	B 5	T1	A 5		
C11	B 6	I C1	E 6	T11	D 4		
C12	E 5	I C2	D 2	T12	D 5		
C13	E 5	I C3	D 5	T13	D 6		
C14	E 5	I C4	E 2	T2	F 4		
C15	F 4	L1	A 6	T3	F 5		
C16	F 4	L2	A 6	T301	F 7		
C17	E 6	L3	C 5	T302	C 8		
C18	E 7	L305	C 8	T303	F 8		
C19	F 6	L306	F 7	T304	E 8		
C2	B 6	L307	D 8	T305	E 8		
C21	D 7	L308	D 7	T306	E 7		
C22	C 4	L309	D 8	T5	E 7		
C23	C 5	L311	E 8	T6	C 6		
C24	C 4	L4	C 5	T7	C 8		
C25	C 5	L5	C 5	T8	E 6		
C26	C 5	Q1	E 5	T9	D 7		
C28	D 7	Q2	D 2				
C30	D 6	R1	B 5				
C303	B 8	R11	E 5				
C304	B 8	R12	F 4				
C305	C 7	R13	F 5				
C306	F 7	R14	F 6				
C307	C 7	R16	F 4				
C308	C 8	R17	F 5				
C309	F 7	R18	F 5				
C311	F 8	R19	E 6				
C312	F 8	R2	B 6				
C313	C 8	R21	C 4				
C314	C 7	R22	C 5				
C315	F 8	R23	E 6				
C316	F 7	R24	C 6				
C317	F 8	R25	E 6				
C318	C 8	R26	C 6				
C319	D 8	R27	F 6				
C32	E 6	R28	E 6				
C320	C 6	R29	E 7				
C321	F 8	R3	B 6				
C322	F 8	R30	D 7				
C323	F 8	R308	C 7				
C324	D 7	R309	F 7				
C325	D 7	R31	E 7				
C326	F 8	R311	F 7				
C327	E 8	R312	C 7				
C328	E 8	R313	C 8				
C329	E 8	R314	C 7				
C33	D 4	R315	C 8				
C331	E 8	R316	D 8				
C332	E 8	R317	F 8				
C333	E 8	R318	F 7				
C334	F 8	R319	F 7				
C335	E 7	R32	E 6				
C336	E 7	R320	F 7				
C337	E 7	R321	F 7				
C34	D 5	R322	D 7				
C35	D 5	R323	D 8				
C36	D 6	R324	D 7				
C37	D 4	R325	F 8				
C38	D 6	R326	F 8				
C39	C 6	R327	F 7				
C41	C 6	R328	D 7				
C42	D 5	R329	D 7				
C43	D 5	R33	E 7				
C44	E 6	R331	F 8				
C45	E 6	R332	F 7				
C46	E 6	R333	F 8				
C47	E 5	R334	E 8				
C48	E 4	R335	E 8				
C49	D 6	R336	E 8				
C5	B 6	R337	E 8				
C50	E 4	R338	E 8				
C51	E 4	R339	E 7				
C52	D 3	R34	D 7				
C53	D 3	R341	E 7				
C54	E 3	R342	E 7				
C55	D 4	R343	E 8				
C56	D 3	R36	D 7				
C57	E 3	R37	D 7				
C58	D 3	R38	D 6				
C59	D 3	R39	D 7				
C6	B 6	R4	E 6				
C62	C 3	R41	C 4				
C63	D 2	R42	E 5				
C66	C 2	R43	C 5				
C67	D 2	R44	D 6				
C68	C 1	R45	D 6				
C69	C 3	R5	C 6				
C7	B 6	R54	D 5				
C71	C 3	R55	D 4				
C8	B 6	R56	D 5				
C9	B 6	R57	D 6				
C94	E 1	R58	E 6				
C96	E 1	R59	E 6				
D1	B 6	R6	F 5				
D17	F 7	R61	E 4				
D18	F 6	R62	E 6				
D19	E 6	R63	E 5				
D2	B 6	R64	D 5				
D20	F 6	R65	D 4				
D3	B 6	R66	E 4				
D307	C 7	R68	E 2				
D308	F 8	R69	D 3				
D309	D 7	R7	E 5				
D311	D 8	R70	E 4				
D4	B 5	R71	C 3				
D5	D 4	R73	C 2				
D6	C 5	R74	E 2				
D7	C 6	R75	C 3				
D8	C 6	R76	D 1				

RF+IF PANEL 2

AM-RF/IF AND FM-IF

+12V

FM-IF FROM R342

F1 19203-126.97 10.7MHZ

F2 19203-126.97 10.7MHZ

T5 BF240 T9 BF240 T13 BF240

F3 19203-126.97 10.7MHZ

F4 19203-126.97

F7 19203-124.14 450 KHZ

IF-ENABLE FROM PIN17 IC1

F6 07202-729.10

F5 07202-730.10 DISTORTION ZERO

IC4 7812 8305-205-765

+12V (11.4-12.6V)

(18V-20V)

to ampl.-supply panel

AM-IF TO PIN15 IC1

FM-IF TO PIN16 IC1

IC3 LA1266 8305-260-166

I F BUFFER · I F BUFFER · FM - IF · Q D · POST AMP · VCC

R70 1.8K FM-MPX OUT TO STEREO DECODER F8

AM-RF FROM AM ANTENNA SECTION C8

L5 5.5-55 39MH

R · F · MIX · AM-IF · DET

REF · OSC · OSC BUFFER · NARROW S-METER · AGC · S-METER · LED DRIVER

AM OSZILLATOR SECTION

VARICAP FROM LOOP-FILTER MW 1-8V (MAX 9V) LW 1 8-5 5V (MAX 7V)

L3 07202-728.12 · L4 07202-727.12

T11 BC548B · T12 BC548B

D5 SVC321SP · D6 SVC321SP

D7 1N4151 · D8 1N4151

+LW · +MW

AM-OSZ TO PIN18 IC1

AM-AF OUT TO STEREO DECODER C54

SEARCH STOP

to operat.-panel 1

(4.75-5.25V) +5V

TO PIN2 IC1 CE

TO PIN3 IC1 DATA OUT

TO PIN4 IC1 CL

FROM PIN5 IC1 DATA IN

SEARCH STOP

FROM PIN13 IC2 STEREO

TO PIN15 IC2 MUTE

STEREO DECODER

VCO STOP FROM PIN14 IC1

MUTE FROM CON.4A2

STEREO TO CON.4A3

MONO

STEREO 456KHZ

IC2 LA3401 8305-260-340

VOL REG · OSC · PHASE COMPARATOR · PILOT DET · VCO STOP · LAMP DRIVER · TRIGGER · SYMMETRICAL REACTANCE CIRCUIT · FF · FF · FF 38KHZ · FF 19KHZ 90° · FF 19KHZ 0° · STEREO SWITCH · DECODER · MUTING CONTROL FM AM CHANGE OVER · MUTING OUTPUT · MUTING FM AM CHANGE · OUT COMP · VCC ON MUTING

AM-AF INPUT FROM R63

FM-MPX INPUT FROM PIN12 IC3

F8 19202-705.12

DE-EMPHASIS

DE-EMPHASIS FOR:	R73 R78	R75 R76	C62 C66
.00(EURO)	270K	330K	180P

DC-VOLTAGES MEASURED AGAINST GROUND WITHOUT ANTENNA SIGNAL AND TUNED TO A DEAD SPOT, EXCEPT FM STEREO

AM

FM

MW

LW

FM STEREO

MPX-FILTER

F9 19202-704.12

F10 19202-704.12

R97 100 · R98 100

to plug-source selector spatial surround panel

MC-Service

Q2	E2	F1	A1	L3	C4	D5	C3	C42	C7
		F2	A2	L4	D4	D6	D3	C43	B8
		F3	B4	L5	C5	D7	D4	C44	D7
		F4	B4			D8	D4	C45	B5
		F5	A7			D12	F5	C46	B5
		F6	A7			D13	G5	C47	B8
		F7	A5			D14	F6	C48	C7
		F8	H2			D15	G6	C49	C6
		F9	F7			D20	A11	C50	G2
		F10	G7					C51	D8
								C52	G2
IC2	F2							C53	E2
IC3	B6							C54	G2
IC4	A9							C55	H2
								C56	G2
								C57	E3
								C58	E3
								C59	G3
								C62	G3
								C63	E3
								C66	G4
								C67	E4
								C68	G4
								C69	H4
								C70	G5
								C71	H4
								C72	F5
								C74	F6
								C94	A9
								C96	A10

R6	C1	C19	D3			R78	G3		
R12	D2	C21	B2			R79	H4		
R13	D2	C22	C4			R80	G5		
R16	D2	C23	D3			R81	E4		
R17	D2	C24	C3			R86	G4		
R18	D2	C25	D3			R87	G4		
R21	C3	C26	D3			R88	F5		
R22	D3	C27	C2			R89	F5		
R29	A1	C28	B3			R90	F5		
R30	B3	C32	C6			R91	G5		
R31	B1	C34	B6			R92	G5		
R32	A2	C35	B6			R94	G8		
R33	B2	C37	A7			R95	H8		
R34	B2	C38	D6			R97	G8		
R35	C3	C39	D5			R98	H8		
R36	A3	C41	D5						
R37	B2								
R38	A3								
R39	B3								
R41	D4								
R43	D4								
R44	B3								
R45	B4								
R52	B7								
R54	B7								
R55	A8								
R56	C7								
R58	D7								
R59	D7								
R61	C7								
R62	C6								
R63	D8								
R64	C8								
R65	C8								
R66	C8								
R67	C8								
R68	E3								
R69	G3								
R70	B8								
R71	H4								
R73	D3								
R74	E3								
R75	H3								
R76	H3								

RF+IF PANEL

AM-LOOP-ANTENNA

FM ANTENNA

IC2
- 1 - 3.2V
- 2 - 3.2V
- 3 - 3.2V
- 4 - 3.2V
- 5 - 5.5V
- 6 - 3.2V
- 7 - 3.2V
- 8 - 5.5V
- 9 - 3.2V
- 10 - 5.5V (0.0V)
- 11 - MUTING OUT 2.8V / 0V OFF ON
- 12 - ⊥ 0V
- 13 - 5.0 (5.0V M, 8.5V ST)
- 14 - 0.0V (5.0V)
- 15 - MUTING IN 4V / 0V OFF ON
- 16 - 2.8V
- 17 - 9.4V (2.7V ST)
- 18 - 5.4V (2.9V)
- 19 - 5.4V (2.9V)
- 20 - 7.5V (4.0V)
- 21 - 1.8V M
- 22 - +12V

T1
- E - ⊥ 0V
- B - 0.7V
- C -

T6
- E - +12V
- B - 0.0V
- C - 12V LW

T7
- E - +12V
- B - 0.0V
- C - 12V MW

T302
- G -
- S - ⊥ 0V
- D - 1.6V

T9
- E - 1.1V
- B - 1.8V
- C - 10.6V

T13
- E - 10V
- B - 10.6V
- C - +12V

T5
- E - 3.2V
- B - 3.8V
- C - 8.9V

T305
- E - 0.6V
- B - 1.2V
- C - 8.1V

T306
- E - 7.5V
- B - 8.1V
- C - 11.1V

T304
- G -
- S - ⊥ 0V
- C - 10.3V

SEPARATION

SEARCH STOP

IC4
- 1 - 19V
- 2 - 0.0V ⊥
- 3 - +12V

V VARICAP
- FM - 2.5V ÷ 8.5V (87.5MHz ÷ 108MHz)
- MW - 1.0V ÷ 8.0V MAX. 9V (522kHz ÷ 1611kHz)
- LW - 1.8V ÷ 5.5V MAX. 7V (153kHz ÷ 281kHz)

✱ ONLY FOR VERSION /17R

AM
FM
MW
LW

T11
- E -
- B - 4.3V
- C - 3.7V (3.4V)

T12
- E -
- B - 4.3V
- C - 3.7V (3.4V)

IC3
- 1 - 1.0V (2.4V)
- 2 - 1.0V (2.4V)
- 3 - 1.0V (2.4V)
- 4 - ⊥ 0V
- 5 - 12V
- 6 - 12V
- 7 - +12V
- 8 - 0V
- 9 - 3.7V (3.9V)
- 10 - 2.5V
- 11 - 2.5V
- 12 - 3.2V
- 13 - IF ENABLE
- 14 - 1.5V
- 15 - 1.5V
- 16 - FIELD STR.
- 17 - 0V
- 18 - 1.1V (2.5V)
- 19 - 1.5V
- 20 - 11.3V (0.0V)
- 21 - 3.7V (3.9V)
- 22 - 3.7V (3.9V)
- 23 - 3.7V (3.4V)
- 24 - 2.3V (2.8V)

IC1
- 1 - 2.9V
- 2 - CE
- 3 - DATA IN
- 4 - CL
- 5 - DATA OUT
- 6 -
- 7 - IN0
- 8 - IN1
- 9 - OUT 0
- 10 - OUT 1
- 11 - OUT 2
- 12 - OUT 3
- 13 - OUT 4
- 14 - OUT 5
- 15 - 0V
- 16 - 0V
- 17 - OUT 6
- 18 - 0.0V (3.0V)
- 19 - 3.0V (0.0V)
- 20 - +6V
- 21 -
- 22 -
- 23 - ⊥ 0V
- 24 - 2.9V

T8
- E - +12V
- B - 0.0V
- C - +12V FM

T301
- G -
- S - ⊥ 0V
- D - 10.3V

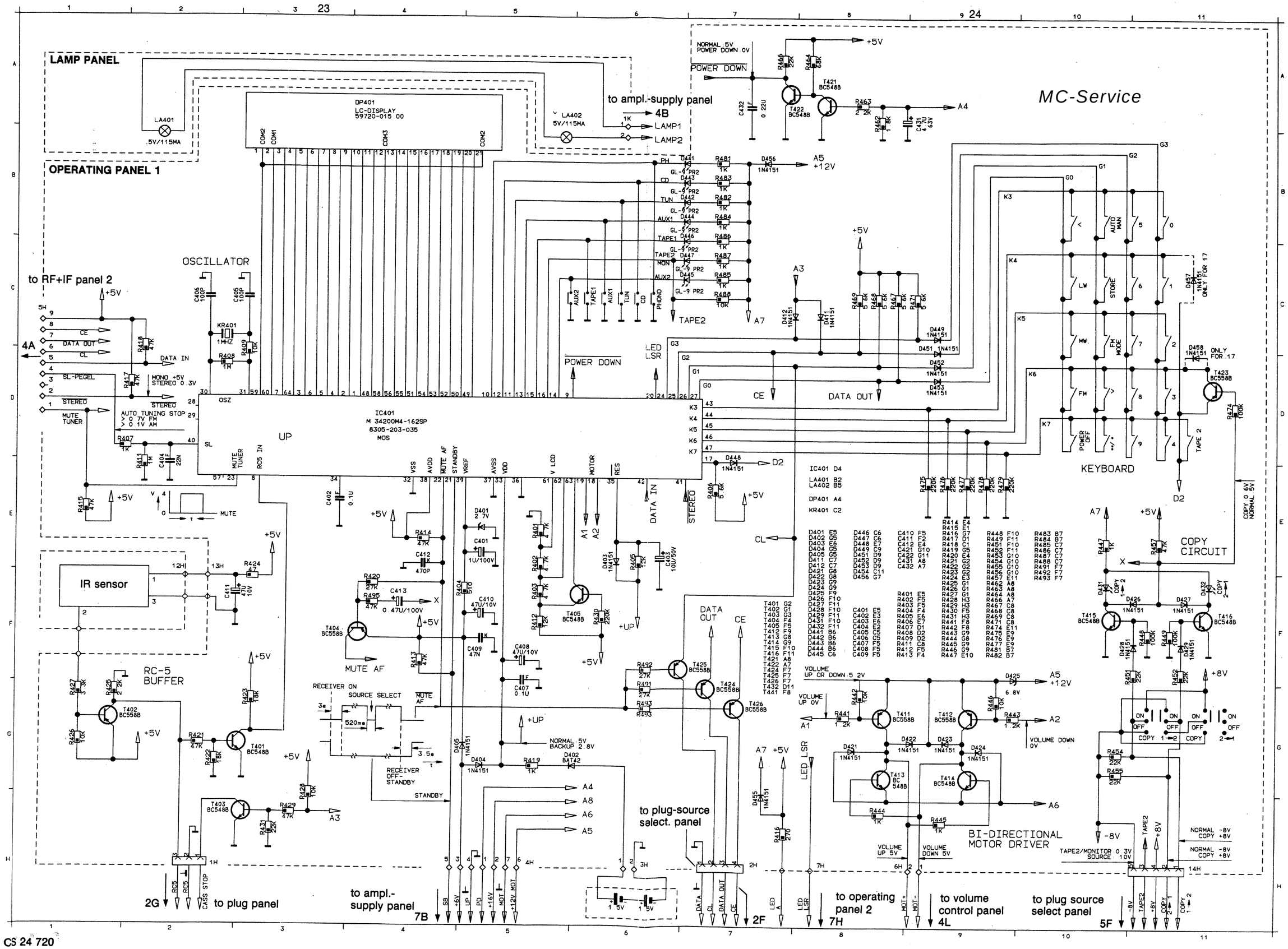
T303
- E - 5.0V
- B - 5.6V
- C - 11.3V

✱ SEE TABLE PAGE

B3 ✱ B2 ✱ B1 ✱ B0 ✱

PCB.01704
T28/934

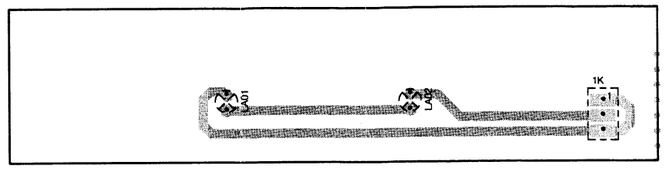
2A	E 1	D9	C 6	R78	C 2
4A	E 3	F1	E 7	R79	C 2
6A	B 4	F10	B 4	R8	E 5
B0	F 6	F2	B 7	R81	E 2
B1	F 6	F3	C 5	R86	C 6
B2	F 6	F4	C 5	R87	D 1
B3	F 6	F5	D 4	R9	E 5
BU3	A 6	F6	D 4	R95	A 4
C1	B 6	F7	D 6	R97	B 4
C10	B 6	F8	D 6	R97	B 4
C103	A 4	F9	B 5	T1	D 5
C11	B 6	I C1	E 6	T11	D 4
C12	E 5	I C2	D 2	T12	D 5
C13	E 5	I C3	D 5	T13	D 6
C14	E 5	I C4	E 2	T2	F 4
C15	F 4	L1	A 6	T3	F 5
C16	F 4	L2	A 6	T301	F 7
C17	E 6	L3	C 5	T302	C 8
C18	E 7	L305	C 8	T303	C 8
C19	F 6	L306	F 7	T304	F 8
C2	B 6	L307	D 8	T305	E 8
C21	D 7	L308	D 8	T306	E 7
C22	C 4	L309	D 8	T5	E 7
C23	C 5	L311	E 8	T6	C 6
C24	C 5	L4	C 5	T7	C 6
C25	C 5	L5	C 5	T8	E 6
C26	C 5	Q1	E 2	T9	D 7
C28	D 7	Q2	B 5		
C30	D 6	R1	B 5		
C303	B 8	R11	E 5		
C304	B 8	R12	F 4		
C305	C 7	R13	F 5		
C306	F 7	R14	F 6		
C307	C 7	R16	F 4		
C308	C 8	R17	F 5		
C309	F 7	R18	F 5		
C311	F 8	R19	E 6		
C312	F 8	R2	B 6		
C313	C 8	R21	C 4		
C314	C 7	R22	C 5		
C315	F 7	R23	E 6		
C316	F 7	R24	C 6		
C317	F 8	R25	E 6		
C318	C 8	R26	C 6		
C319	D 8	R27	F 6		
C32	E 6	R28	E 6		
C320	C 6	R29	E 7		
C321	F 8	R3	B 6		
C322	F 8	R30	D 7		
C323	F 8	R308	C 7		
C324	D 7	R309	F 7		
C325	D 7	R31	E 7		
C326	F 8	R311	F 7		
C327	E 8	R312	C 7		
C328	E 8	R313	C 8		
C329	E 8	R314	C 8		
C33	D 4	R315	C 8		
C331	E 8	R316	D 8		
C332	E 8	R317	C 7		
C333	E 8	R318	C 7		
C334	F 8	R319	F 7		
C335	E 7	R32	E 6		
C336	E 7	R320	F 7		
C337	E 7	R321	F 7		
C34	D 5	R322	D 7		
C35	D 5	R323	D 8		
C36	D 6	R324	D 7		
C37	D 4	R325	F 8		
C38	D 6	R326	F 8		
C39	C 6	R327	F 7		
C41	C 6	R328	D 7		
C42	D 5	R329	D 7		
C43	D 5	R33	E 7		
C44	E 6	R331	F 8		
C45	E 6	R332	F 7		
C46	E 6	R333	F 8		
C47	E 5	R334	E 8		
C48	E 4	R335	E 8		
C49	D 6	R336	E 8		
C5	B 6	R337	E 8		
C50	E 4	R338	E 8		
C51	E 4	R339	E 7		
C52	D 3	R34	D 7		
C53	D 3	R341	E 7		
C54	E 3	R342	E 7		
C55	D 4	R343	E 8		
C56	D 3	R36	D 7		
C57	E 3	R37	D 7		
C58	D 3	R38	D 6		
C59	D 3	R39	D 7		
C6	B 6	R4	B 6		
C62	C 3	R41	C 4		
C63	D 2	R42	E 5		
C66	C 2	R43	C 5		
C67	D 2	R44	D 6		
C68	C 1	R45	D 6		
C69	C 3	R5	C 6		
C7	B 6	R54	D 5		
C71	C 3	R55	D 4		
C8	B 6	R56	D 5		
C9	B 6	R57	D 6		
C94	E 1	R58	E 6		
C96	E 1	R59	E 6		
D1	B 6	R6	E 5		
D17	F 7	R61	E 4		
D18	F 6	R62	E 6		
D19	F 6	R63	E 5		
D2	B 6	R64	D 5		
D20	F 6	R65	D 4		
D3	B 6	R66	D 4		
D307	C 7	R68	E 2		
D308	F 8	R69	D 3		
D309	D 7	R7	E 5		
D311	D 8	R70	E 4		
D4	B 5	R71	C 3		
D5	D 4	R73	C 2		
D6	C 5	R74	E 2		
D7	C 6	R75	C 3		
D8	C 6	R76	D 1		


LAMP PANEL
LA401
5V/115MA
LA402
5V/115MA
to ampl.-supply panel
4B
LAMP1
LAMP2
OPERATING PANEL 1
DP401
LC-DISPLAY
59720-015.00
COM2
COM1
COM3
COM2
MC-Service
NORMAL 5V
POWER DOWN 0V
POWER DOWN
+5V
R466 22K
R464 68K
T421 BC548B
T422 BC548B
C432 0.22U
R463 2K
R462 1.8K
C431 4.7U 63V
A4
A5 +12V
D456 1N4151
PH
CD
TUN
AUX1
TAPE1
TAPE2
MON
AUX2
GL-9 PR2
R481 1K
R483 1K
R482 1K
R484 1K
R486 1K
R487 1K
R485 1K
R488 10K
AUX2
TAPE1
AUX1
TUN
CD
PHONO
TAPE2
A7
A3
D412 1N4151
D411 1N4151
R469 5.6K
R468 5.6K
R467 5.6K
R471 5.6K
D449 1N4151
D451 1N4151
D452 1N4151
D453 1N4151
D457 1N4151 ONLY FOR 17
D458 1N4151 ONLY FOR 17
T423 BC558B
R474 100K
OSCILLATOR
to RF+IF panel 2
4A
C406 100P
C405 100P
KR401 1MHZ
R408 1M
R409 10K
5H
CE
DATA OUT
CL
DATA IN
R418 4.7K
R417 4.7K
SL-PEGEL
STEREO
MONO +5V
STEREO 0.3V
MUTE TUNER
AUTO TUNING STOP
> 0.7V FM
> 0.1V AM
R407 1K
R411 1M
C404 22N
SL
OSZ
IC401
M 34200M4-162SP
8305-203-035
MOS
UP
LED LSR
POWER DOWN
CE
DATA OUT
K3
K4
K5
K6
K7
D448 1N4151
D2
IC401 D4
LA401 B2
LA402 B5
DP401 A4
KR401 C2
R475 220K
R476 220K
R477 220K
R478 220K
R479 220K
KEYBOARD
AUTO MAN
LW
STORE
MW
FM MODE
FM
POWER OFF
TAPE 2
COPY 0.6V NORMAL 5V
R406 5.6K
DATA IN
STEREO
CL
A1
A2
R405 12K
C403 10U/50V
D403 1N4151
R401 4.7K
R402 4.7K
R403 4.7K
R412 12K
R430 220K
T405 BC548B
+UP
R414 47K
C401 1U/100V
C412 470P
D401 2.7V
R420 47K
R495 47K
C413 0.47U/100V
X
T404 BC558B
MUTE AF
R413 47K
R404 510
C410 47U/10V
C409 47N
C408 47U/10V
C407 0.1U
R492 27K
R491 27K
R493 27K
T425 BC558B
T424 BC558B
T426 BC558B
DATA OUT
CE
T401 G2
T402 G1
T403 G3
T404 F4
T405 F5
T412 F9
T413 G8
T414 G9
T415 F10
T416 F11
T421 A8
T422 A7
T424 F7
T425 F7
T426 F7
T432 D11
T441 F8
C402 0.1U
C432 0.22U
C431 4.7U 63V
C433 10U/50V
C410 F5
C411 F2
C412 E4
C421 G10
C422 G11
C431 A8
C432 A7
D401 E5
D402 G5
D403 E6
D404 G6
D405 G5
D411 C7
D412 C7
D421 G8
D422 G8
D423 G9
D424 G9
D425 F9
D426 F10
D427 F11
D428 F10
D429 F11
D431 F10
D432 F11
D441 B6
D442 B6
D443 B6
D444 B6
D445 C6
D446 C6
D447 C6
D448 E7
D449 D9
D451 D9
D452 D9
D453 D9
D454 C11
D456 G7
R401 E5
R402 F5
R403 F5
R404 F4
R405 E6
R406 E7
R407 D1
R408 D2
R409 D2
R411 C8
R412 F5
R413 F4
R414 E4
R415 E1
R416 E7
R417 D1
R418 C1
R419 G5
R420 E4
R421 G2
R422 G2
R423 G2
R424 E5
R425 G1
R426 G1
R427 G1
R428 H3
R429 H3
R430 F5
R431 H3
R441 F8
R442 F8
R443 G9
R444 G8
R445 G9
R446 G9
R447 E10
R448 F10
R449 F11
R451 F10
R452 F11
R453 G10
R454 G10
R455 G10
R456 G10
R457 E11
R462 A8
R463 A8
R464 A7
R466 C8
R467 C8
R468 C8
R469 C8
R471 C8
R474 E11
R475 E9
R476 E9
R477 E9
R478 E9
R481 B7
R482 B7
R483 B7
R484 B7
R485 C7
R486 C7
R487 C7
R488 C7
R491 F7
R492 F7
R493 F7
IR sensor
12H
13H
R424 47
C411 47U 10V
RC-5 BUFFER
R427 3.3K
R425 2.2K
T402 BC558B
R426 10K
R423 18K
T401 BC548B
R421 47K
R422 18K
+5V
RECEIVER ON
SOURCE SELECT
MUTE AF
520ms
3.5s
RECEIVER OFF-STANDBY
STANDBY
NORMAL 5V BACKUP 2.8V
D405 1N4151
D404 1N4151
R419 1K
D402 BAT42
T403 BC548B
R429 47K
R428 10K
R431 22K
A3
A4
A8
A6
A5
to plug-source select. panel
1H
2H
3H
4H
2G
RC5
RC5
CASS STOP
to plug panel
to ampl.-supply panel
7B
SB
+6V
UP
PD
+16V
MOT
+12V MOT
1.5V
1.5V
DATA
CL
DATA OUT
CE
2F
LED A
LED LSR
7H
to operating panel 2
7H
MOT+
MOT-
to volume control panel
4L
VOLUME UP OR DOWN 5.2V
VOLUME UP 0V
R442 10K
R441 1.2K
T411 BC558B
T412 BC558B
D425 6.8V
R446 10K
R443 1.2K
A5 +12V
A1
A2
VOLUME DOWN 0V
D421 1N4151
D422 1N4151
D423 1N4151
D424 1N4151
T413 BC 548B
T414 BC548B
R444 1K
R445 1K
A6
VOLUME UP 5V
VOLUME DOWN 5V
6H
BI-DIRECTIONAL MOTOR DRIVER
A7
+5V
COPY CIRCUIT
R447 1K
R457 47K
X
D431 COPY 2
D432 COPY 2-1
D426 1N4151
D427 1N4151
T415 BC548B
T416 BC548B
D428 1N4151
D429 1N4151
R448 100K
R449 100K
R451 22K
R452 22K
+8V
-8V
ON OFF COPY 1-2
ON OFF COPY 2-1
R454 22K
R455 22K
TAPE2/MONITOR 0.3V SOURCE 1.0V
NORMAL -8V COPY +8V
NORMAL -8V COPY +8V
14H
to plug source select panel
5F
-8V
TAPE2
+8V
COPY 1-2
COPY 2-1

-	B9	07	C3	1H	C3	9H	F12	C226	F2	C236	E3	C402	D8	C411	C2	D401	D7	D422	D11	D432	G11	D449	F7	IC401	E7	R223	E1	R233	E2	R243	E4	R254	E2	R407	E8	R417	F9	R426	C2	R444	C11	R454	G9	R468	F8	R481	G3	R492	F8	T224	F2	T413	C12	T426	F8
/	B9	08	C4	1K	A5	AUT	B9	C227	E3	C237	E4	C403	D8	C412	E11	D402	E8	D423	C11	D441	F3	D451	F7	LA01	A7	R224	E1	R234	E2	R244	F4	R255	E2	R408	F8	R418	E8	R427	C2	R445	C12	R455	G10	R469	F7	R482	G4	R493	F7	T225	E4	T414	C12	T427	E11
00	C5	09	C4	2H	F8	AUX1	G7	C228	E3	C238	E3	C404	D9	C421	G10	D403	D8	D424	C12	D442	F4	D452	F7	LA02	A6	R225	E2	R235	F2	R245	E4	R256	E2	R409	F8	R419	D8	R428	C3	R446	C11	R456	G10	R471	F7	R483	G5	R495	E11	T226	E4	T415	F9	T428	E11
01	B3	10H	D4	3H	D9	AUX2	G8	C229	E3	C241	E3	C405	F8	C422	G10	D404	E9	D425	C10	D443	F5	D453	F7	LW	B11	R226	E2	R236	E3	R247	E3	R401	C6	R411	D9	R420	D11	R429	C4	R447	F10	R457	E10	R474	C12	R484	G6	S211	G12	T401	C3	T416	F10	TA	G3
02	B3	11H	D12	4H	C10	C221	E1	C231	F3	C242	E4	C406	F8	C431	C8	D405	D6	D426	F10	D444	F7	D455	D10	MW	B12	R227	E2	R237	F2	R248	D3	R402	D6	R412	C6	R421	C3	R430	D6	R448	F9	R462	C8	R475	D8	R485	G8	S211	G12	T402	C2	T421	C9	TAP1	G9
03	B4	12H	B1	5H	F9	C222	F1	C232	E4	C243	E2	C407	D8	C432	C9	D405	E9	D427	F10	D445	F8	D456	D10	POWER	F1	R228	E2	R238	F4	R249	E3	R403	D6	R413	D10	R422	C3	R431	C3	R449	F10	R463	D8	R476	C8	R486	G9	STOR	B10	T403	C3	T422	C9	TAP2	G11
04	B4	13H	C2	6H	D11	C223	E2	C233	F4	C244	E2	C408	D8	CD	G6	D411	F7	D428	F10	D446	F9	DP401	C7	R211	F12	R229	D2	R239	F4	R251	E4	R404	D8	R414	D10	R423	C2	R441	C11	R451	G9	R464	D9	R477	C8	R487	F10	T221	D1	T404	E11	T423	C12	TUN	G4
05	B5	14H	G10	7H	E11	C224	F2	C234	E4	C246	E4	C409	E10	COPY1	G9	D412	F7	D429	F10	D447	F11	FM	B12	R221	E1	R231	F2	R241	E4	R252	F3	R405	D8	R415	E9	R424	C1	R442	C11	R452	G10	R466	C9	R478	C8	R488	F10	T222	E2	T411	C11	T424	F8		
06	C3	15H	E1	8H	E12	C225	E2	C235	F4	C401	D7	C410	E10	COPY2	G10	D421	D12	D431	G9	D448	G11	FMM	B11	R222	E1	R232	D2	R242	F4	R253	F4	R406	G11	R416	E10	R425	C3	R443	C11	R453	G9	R467	F8	R479	C8	R491	F7	T223	D2	T412	C11	T425	F8		

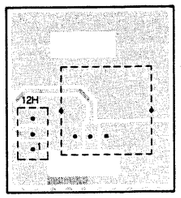
12 11 10 9 8 7 6 5 4 3 2 1

LAMP-PANEL

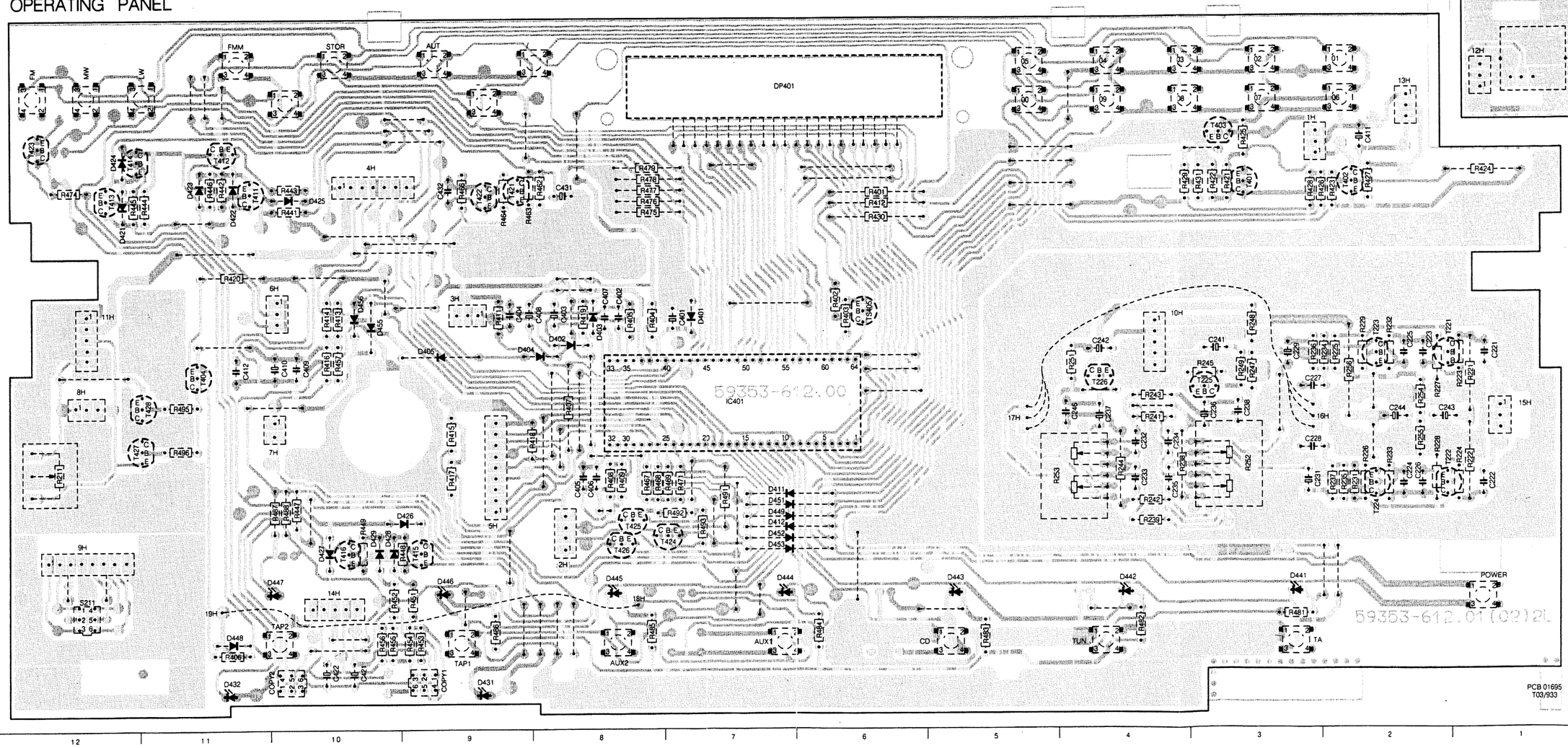


MC-Service

IR-SENSOR PANEL



OPERATING PANEL



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1G	A5	C803	B2	C814	B2	C825	C1	C835	D1	C845	E5	C854	D7	C864	B7	I C802	C4	R803	C1	R814	C6	R824	B4	R835	B1	R845	B5	R855	E5	R865	B6	R876	D7	R887	B7	T806	E1
2F	D5	C804	B1	C816	B1	C825	C6	C836	C5	C846	D5	C855	C7	C865	D7	I C802	B5	R804	C2	R815	B1	R826	D1	R836	D1	R846	B5	R856	D5	R866	B6	R877	D7	R888	B7	TAPE1	A5
2G	A4	C805	C4	C817	D1	C826	D1	C837	B2	C847	E3	C856	B7	C866	D6	I C803	C3	R805	C2	R816	D1	R827	C1	R837	E1	R847	B5	R857	E2	R867	B6	R878	D7	R889	D7		
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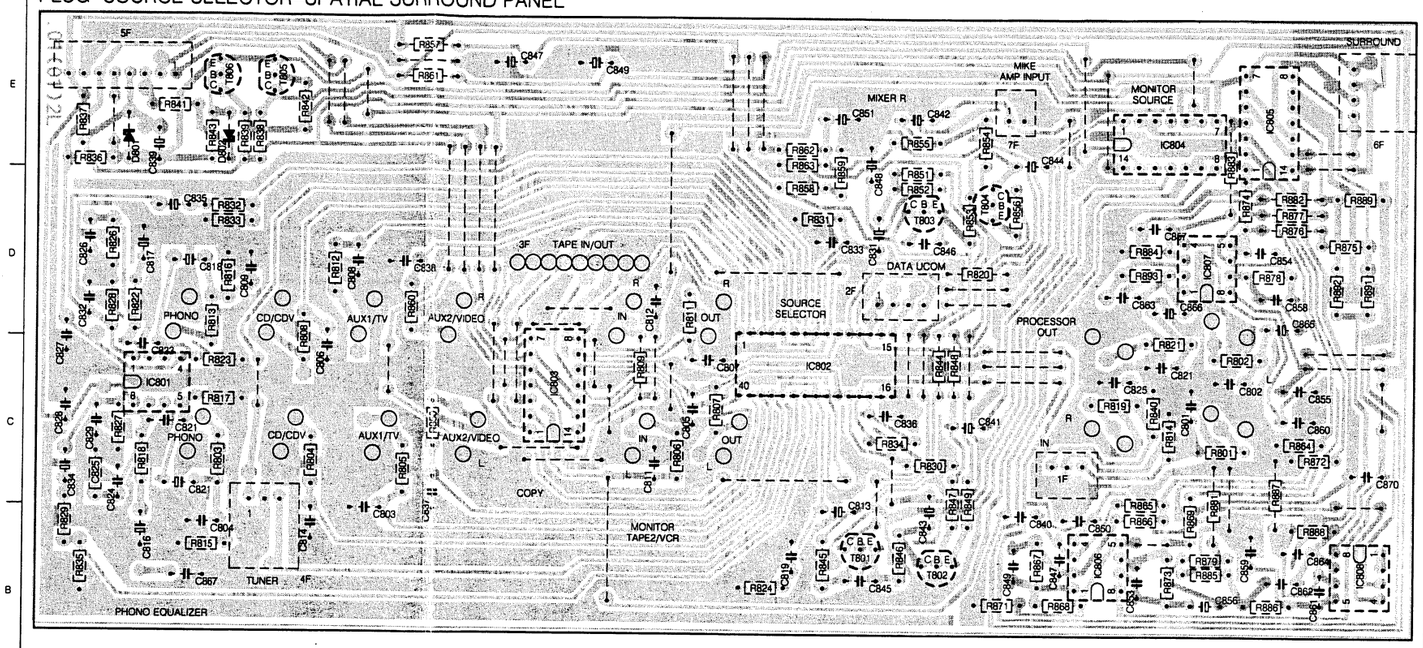
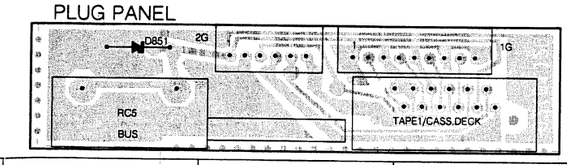
4F	B2	C807	C4	C819	B4	C828	C1	C839	D1	C848	D5	C858	D7	C870	C7	I C805	E7	R807	C4	R818	C1	R829	B1	R839	E2	R849	B5	R859	D5	R869	B6	R881	B7	R892	D7		
5F	E1	C808	D2	C821	C1	C829	C1	C840	B6	C849	E3	C859	B7	D801	D1	I C806	B6	R808	C2	R819	C6	R830	C5	R840	C6	R850	C2	R860	D2	R871	B5	R882	D7	R893	D6		
6F	E7	C809	D2	C821	C1	C831	D5	C841	C5	C849	E5	C860	C7	D802	D1	I C807	D6	R809	C4	R820	D5	R831	D4	R841	E1	R851	D5	R861	E2	R872	C7	R883	D7	RC5	A3		
7F	E6	C811	B4	C821	C6	C832	C1	C842	E5	C850	E6	C861	B7	D851	A3	I C808	B7	R811	C4	R821	C6	R832	D1	R842	E2	R852	D5	R862	E4	R873	B6	R884	D6	T803	D5		
C801	C6	C812	C4	C823	C1	C833	D5	C843	B5	C851	E5	C862	B7	I C801	C1	R801	C7	R812	D2	R822	D1	R833	D1	R843	E1	R853	D5	R863	D4	R874	D7	R885	B6	T804	D5		

PLUG-SOURCE SELECTOR-SPATIAL SURROUND PANEL



PLUG PANEL



MC-Service

PCB.01663
T03-934

PLUG-SOURCE SELECTOR PANEL

spatial surround panel

MC-Service

SOURCE SELECTOR

PHONO EQUALIZER

MIXER SOURCE/MICROPHONE

MONITOR SELECTOR L

MONITOR SELECTOR R

SPATIAL SURROUND

L DIFFERENCE SIGNAL

R DIFFERENCE SIGNAL

PHASE SHIFT 180°

LOW-PASS ACTIVE FILTER

LEFT-RIGHT-SIGNAL

COPY 1→2
COPY 2→1
SELECTOR

PLUG PANEL

to RF+IF panel 2

4, 5, 6 to ampl.supply panel

1, 2, 3 to operat. panel 1

to operat. panel 1

6-8 to ampl. supply panel

1-5 to operat. panel

to L.S. switch panel

to microphone panel

to volume control panel

CS 24 723

MICROPHONE PANEL

7F ← to plug-source select panel

+16V ←
-16V ←
7B to ampl. supply panel

26MV ~ MICROPH
MICROPH 0.17MV ~
MICRO
B1
A1
15.5V
13.5V
1.5V
-12.5V
-14.5V
T951 BC550C
T952 BC560C
MICROPH. BOARD .59353-151.94

VOLUME CONTROL PANEL

SURROUND 53MV ~ 54MV ~
54MV ~ 103MV ~ SURROUND
1F ← to plug-source select panel
VOLUME UP 5V
VOLUME DOWN 5V
6H MOT+ MOT-
to operating panel 1

OPERATING PANEL 2

TONE CONTROL AMP.

MC-Service

+2 3.2V
+1 13.5V
SURROUND 53MV ~ 54MV ~
LOUDNESS OFF ON
T221 BC550C
T222 BC550C
T223 BC560C
T224 BC560C
T225 BC550C
T226 BC550C
R253-1 10K
R252-1 50K
R253-2 10K
R252-2 50K
2.6V
6.6V
6.4V
54MV ~ 103MV ~ SURR
116MV ~ 122MV ~ SURR
122MV ~ 226MV ~ SURR

T427 BC548B
T428 BC548B
BALANCE
MUTE AF
A8 16V
520ms
RECEIVER ON
SOURCE SELECT
RECEIVER OFF

→ 9B to ampl. supply panel

D465 GL-9 PR2
7H LED< LED LSR
to operating panel 1

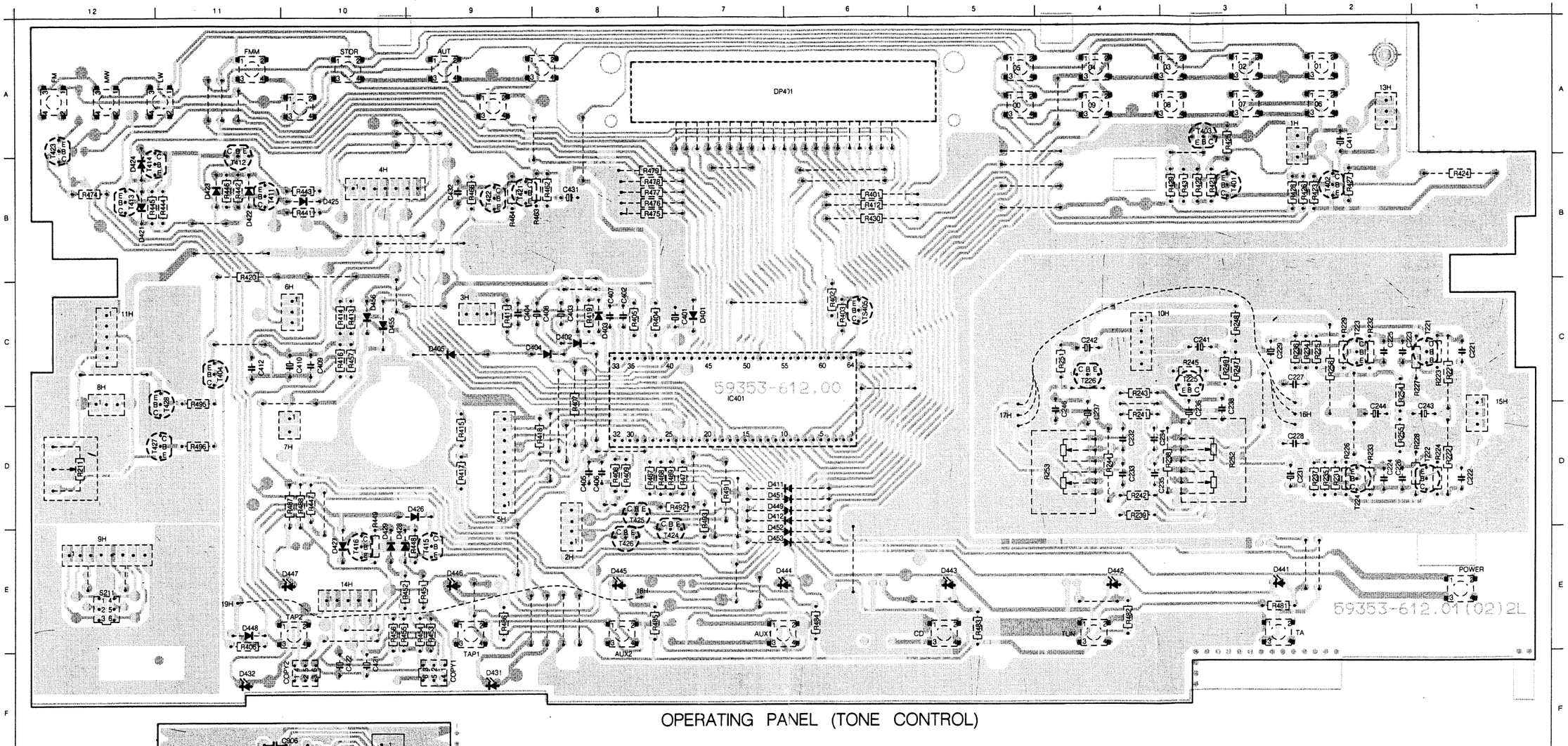
T221 C6	C221 C5	C903 G3	R211 D9	R245 C8	R955 B3
T222 F6	C222 F5	C904 F3	R221 C5	R246 F8	R956 B3
T223 C6	C223 C5	C905 F3	R222 F5	R247 C8	R957 B3
T224 F6	C224 F5	C906 D3	R223 C5	R248 F8	R958 B3
T225 C8	C226 F6	C907 D3	R224 F5	R249 C9	R959 A3
T226 F8	C227 B7	C951 B2	R225 C6	R251 F9	R961 A3
T427 D9	C228 F7	C952 B2	R226 F6		R962 C3
T428 E9	C229 C6	C954 B3	R227 B7	R254 E7	R963 B4
T951 B3	C231 F6	C955 B3	R228 F7	R255 E7	
T952 B3	C232 B8	C956 B4	R229 C6	R256 E8	
	C233 F7	C957 B4	R231 F6	R495 E9	
D465 G5	C234 D7	C958 A4	R232 C6	R496 D9	
	C235 G7		R233 F6	R901 D2	
L901 G3	C236 C7		R234 C6	R902 F2	
L902 G3	C237 F7		R235 F6	R903 D3	
	C238 C8		R236 C7	R904 E3	
	C239 F8		R237 C7	R905 D4	
	C241 C9		R238 C7	R906 F4	
	C242 F9		R239 F7	R951 B2	
	C243 E7		R241 C8	R952 B2	
	C244 E8		R242 F8	R953 B3	
	C901 D3		R243 C8	R954 B3	
	C902 D3		R244 F8		

33

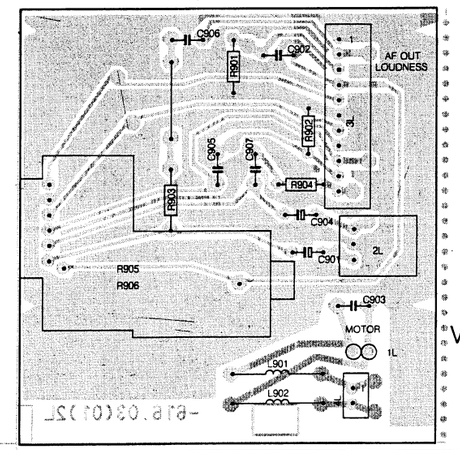
-	A9	08	A4	2H	E8	8H	C12	C226	D2	C237	D4	C404	C9	C422	F10	C951	G3	COPY2	F10	D422	B11	D441	E3	D452	D7	LW	A11	R227	C1	R238	D3
/	A9	09	A4	2L	G10	9H	E12	C227	C3	C238	D3	C405	D8	C431	B8	C952	H3	D401	C7	D423	B11	D442	E4	D453	E7	MW	A12	R228	D1	R239	D4
00	A5	10H	C4	2M	G1	AUT	A9	C228	D3	C241	C3	C406	D8	C432	B9	C954	H3	D402	C8	D424	B12	D443	E5	D455	C10	POWER	E1	R229	C2	R241	D4
01	A2	11H	C12	3H	C9	AUX1	E7	C229	C3	C242	C4	C407	C8	C901	H10	C955	G3	D403	C8	D425	B10	D444	E7	D456	C10	R211	D12	R231	D2	R242	D4
02	A3	13H	A2	3L	G10	AUX2	F8	C231	D2	C243	D2	C408	C8	C902	F10	C956	H2	D404	C9	D426	D10	D445	E8	DP401	A7	R221	C1	R232	C2	R243	C4
03	A4	14H	E10	4H	B10	C221	C1	C232	D4	C244	D2	C409	C10	C903	H10	C957	G2	D405	C9	D427	E10	D446	E9	FM	A12	R222	D1	R233	D2	R244	D4
04	A4	15H	D1	4L	H10	C222	D1	C233	D4	C246	D4	C410	C10	C904	G10	C958	H2	D405	C6	D428	E10	D447	E11	FMM	A11	R223	C1	R234	C2	R245	C3
05	A5	1H	A3	5H	D9	C223	C1	C234	D3	C401	C7	C411	A2	C905	G10	C959	H2	D411	D7	D429	E10	D448	E11	I C401	C7	R224	D1	R235	D2	R247	C3
06	A2	1L	H9	6H	C11	C224	D2	C235	D3	C402	C8	C412	C11	C906	F10	CD	E6	D412	D7	D431	F9	D449	D7	L901	H10	R225	C2	R236	C2	R248	C3
07	A3	1M	G1	7H	D11	C225	C2	C236	D3	C403	C8	C421	F10	C907	G10	COPY1	F9	D421	B12	D432	F11	D451	D7	L902	H10	R226	D2	R237	D2	R249	C3

34

R251	C4	R405	C8	R416	C10	R426	B2	R445	B11	R456	E10	R474	B12	R485	E7	R902	G10	R956	H3	T222	D1	T412	B11	T426	E8						
R252	D3	R406	E11	R417	D9	R427	B2	R446	B11	R457	C10	R475	B8	R486	E9	R903	G11	R957	H2	T223	C2	T413	B12	T427	D11						
R253	D4	R407	C8	R418	D8	R428	B2	R447	D10	R462	B8	R476	B8	R487	D10	R904	G10	R958	H2	T224	D2	T414	B12	T428	C11						
R254	C2	R408	D8	R419	C8	R429	B3	R448	E9	R463	B8	R477	B8	R488	D10	R905	H11	R959	H1	T225	C3	T415	E9	T951	H3						
R255	D2	R409	D8	R420	B11	R430	B3	R451	E9	R466	B9	R479	B8	R491	D7	R906	H11	R961	H3	T226	C4	T416	E10	T952	H2						
R256	C2	R411	C9	R421	B3	R431	B3	R452	E9	R467	D8	R481	E3	R493	D7	R951	H3	R962	G1	T401	B3	T421	B9	TA	E3						
R401	B6	R412	B6	R422	B3	R441	B10	R453	E9	R468	D7	R482	E4	R495	C11	R952	H3	R963	G2	T402	B2	T422	B9	TAP1	F9						
R402	C6	R413	C10	R423	B2	R442	B11	R454	E9	R469	D7	R483	E5	R496	D11	R954	H3	STOR	A10	T404	C11	T423	A12	TAP2	E11						
R403	C6	R414	C10	R424	B1	R443	B10	R455	E9	R471	D7	R484	E6	R901	F10	R955	H3	T221	C1	T411	B11	T425	D8	TUN	E4						

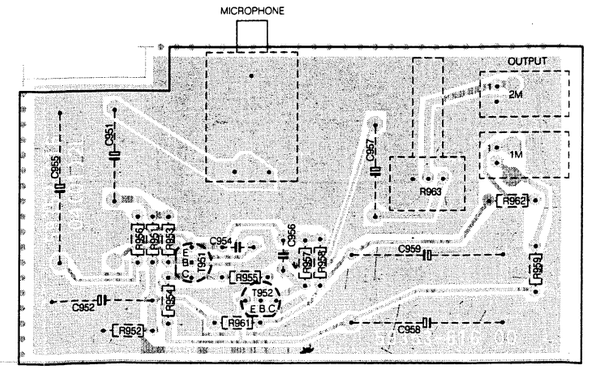


OPERATING PANEL (TONE CONTROL)



VOLUME CONTROL PANEL

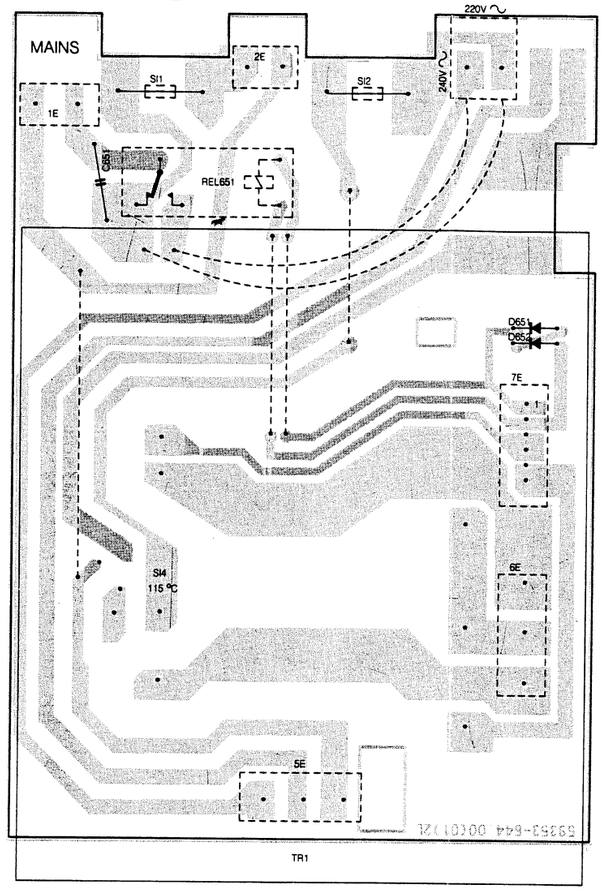
MC-Service



MICROPHONE PANEL

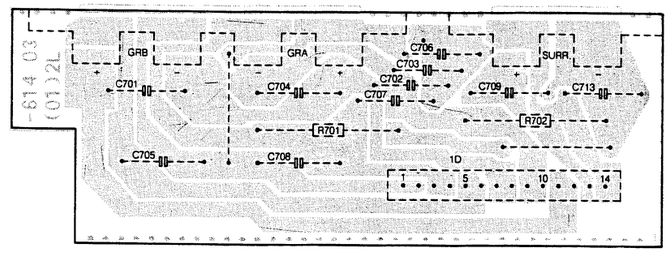
PCB.01696
T03/933

TRAFO PANEL

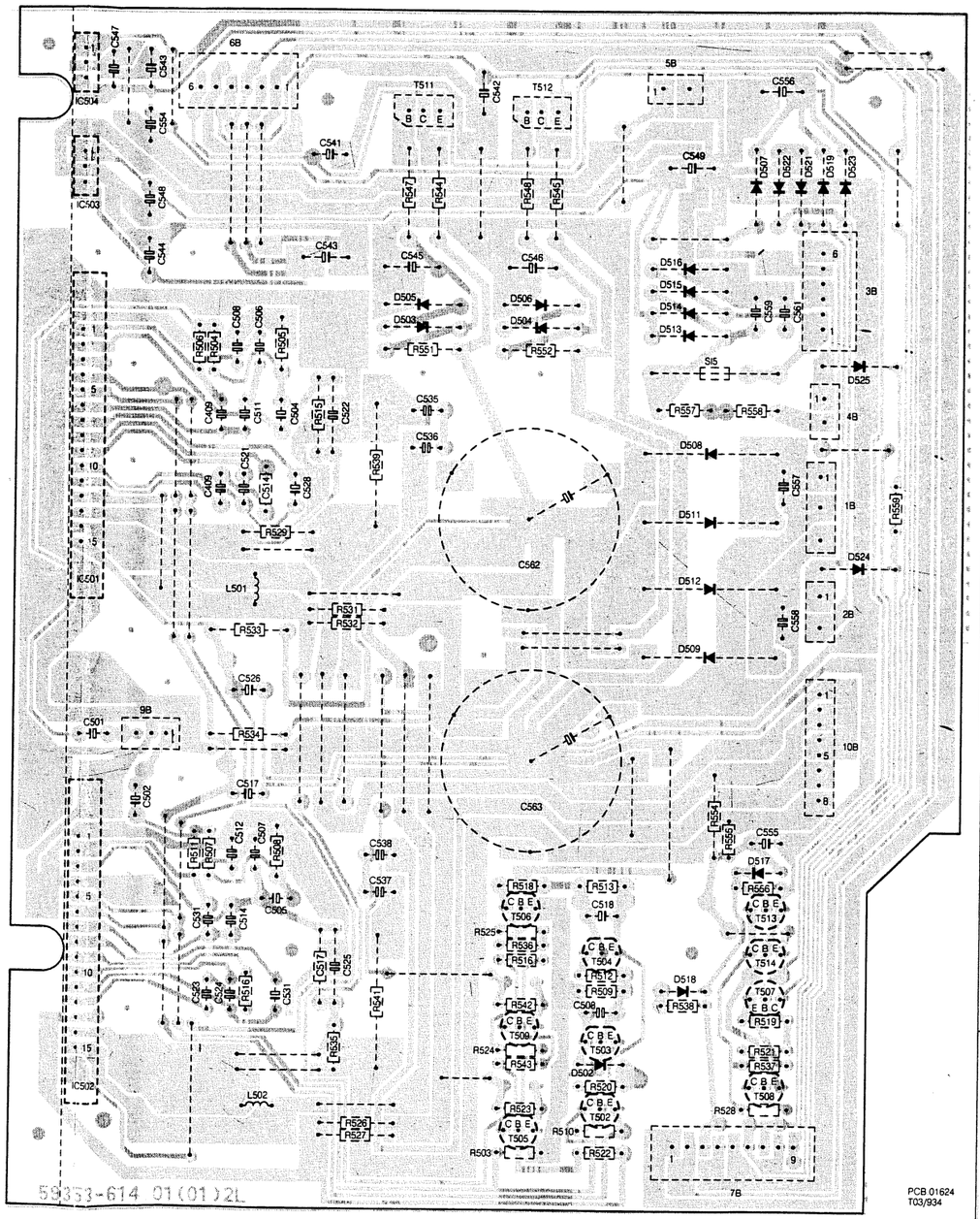


MC-Service

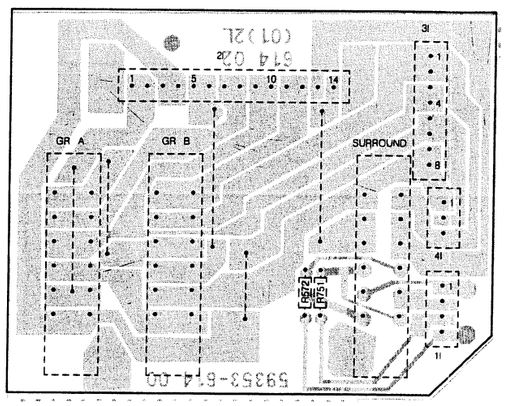
LOUDSPEAKER CLAMP PANEL



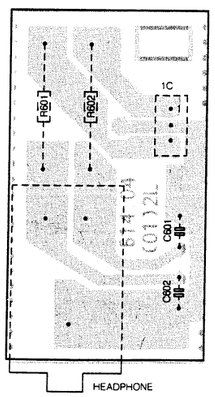
AMPLIFIER–SUPPLY PANEL



SPEAKERS/SPATIAL SURROUND SWITCH PANEL



HEADPHONE PANEL



10B	F1	R525	G3
1B	E1	R526	H4
1C	G7	R527	H4
1D	A2	R528	H2
1E	A11	R529	E5
1I	H9	R531	E4
2B	E1	R532	E4
2E	A10	R533	E5
2I	G10	R534	F5
3B	D1	R535	H4
3I	G9	R536	G3
4B	D1	R537	H2
4I	H9	R538	G2
5B	B2	R539	D4
5E	E10	R541	G4
6B	B5	R542	G3
6E	D9	R543	H3
7B	H2	R544	C3
7E	C9	R545	C3
9B	F5	R547	C4
C409	E5	R548	C3
C409	D5	R551	D4
C501	F6	R552	D3
C502	F5	R554	F2
C504	D4	R555	F2
C505	G5	R556	G2
C506	D4	R557	D2
C507	F4	R558	D2
C508	D5	R559	E1
C508	G3	R572	H10
C511	D4	R601	G8
C512	F5	R602	G8
C514	E4	R701	A2
C514	G5	R702	A1
C517	G4	R751	H10
C517	F5	REL65	B11
C518	G3	SI 1	A11
C521	D5	SI 2	A10
C522	D4	SI 4	D11
C523	G5	SI 5	D2
C524	G5	SURRO	G10
C525	G4	T502	H3
C526	F5	T503	H3
C528	E4	T504	G3
C531	G4	T505	H3
C531	G5	T506	G3
C535	D4	T507	G2
C536	D4	T508	H2
C537	G4	T509	H3
C538	G4	T511	B4
C541	C4	T512	B3
C542	B3	T513	G2
C543	B5	T514	G2
C543	C4	TR1	E10
C544	C5		
C545	C4		
C546	C3		
C547	B5		
C548	C5		
C549	C2		
C549	C2		
C554	C5		
C555	F2		
C556	B2		
C557	E1		
C558	E1		
C559	D2		
C561	D1		
C562	E3		
C563	F3		
C601	H7		
C602	H7		
C651	B11		
C701	A4		
C702	A2		
C703	A2		
C704	A3		
C705	A3		
C706	A2		
C707	A2		
C708	A3		
C709	A2		
C713	A1		
D502	H3		
D503	D4		
D504	D3		
D505	D4		
D506	D3		
D507	C2		
D508	D2		
D509	E2		
D511	E2		
D512	E2		
D513	D2		
D514	D2		
D515	C2		
D516	C2		
D517	G2		
D518	G2		
D519	C1		
D521	C1		
D522	C1		
D523	C1		
D524	E1		
D525	D1		
D651	B9		
D652	B9		
GR A	G11		
GR B	G11		
I C501	E6		
I C502	H6		
I C503	C6		
I C504	C6		
L501	E5		
L502	H5		
R503	H3		
R504	D5		
R505	D4		
R506	D5		
R507	G5		
R508	G4		
R509	G3		
R510	H3		
R511	G5		
R512	G3		
R513	G3		
R515	D4		
R516	G5		
R516	G3		
R518	G3		
R519	G2		
R520	H3		
R521	H2		
R522	H3		
R523	H3		
R524	H3		

37

38

AMPLIFIER-SUPPLY PANEL

FINAL STAGE

IC501 STK 4036 X 8305-574-036

IC502 STK 4036 X 8305-574-036

6F +8V SUR -8V SUR

to plug-source select panel

SURROUND

HEADPHONE PANEL

SPEAKER/SPATIAL SURROUND SWITCH PANEL

L.S. CLAMP PANEL

8H to operat. panel 2

LS-PROTECTION CIRCUIT STANDBY CIRCUIT

RELAY DRIVER

OVERLOAD PROTECTION CIRCUIT

MC-Service

POWER SUPPLY

IC503 7812 8305-205-765

IC504 7806 8305-205-708

5F to plug-source select panel

1-7 to operating panel 1

4H

8,9 1M to microphone panel

2A to RF+IF panel 2

to lamp p

REL651 D15
SI1 E16
SI2 E14
SI3 E14
SI4 E14

L501 G1
L502 F5

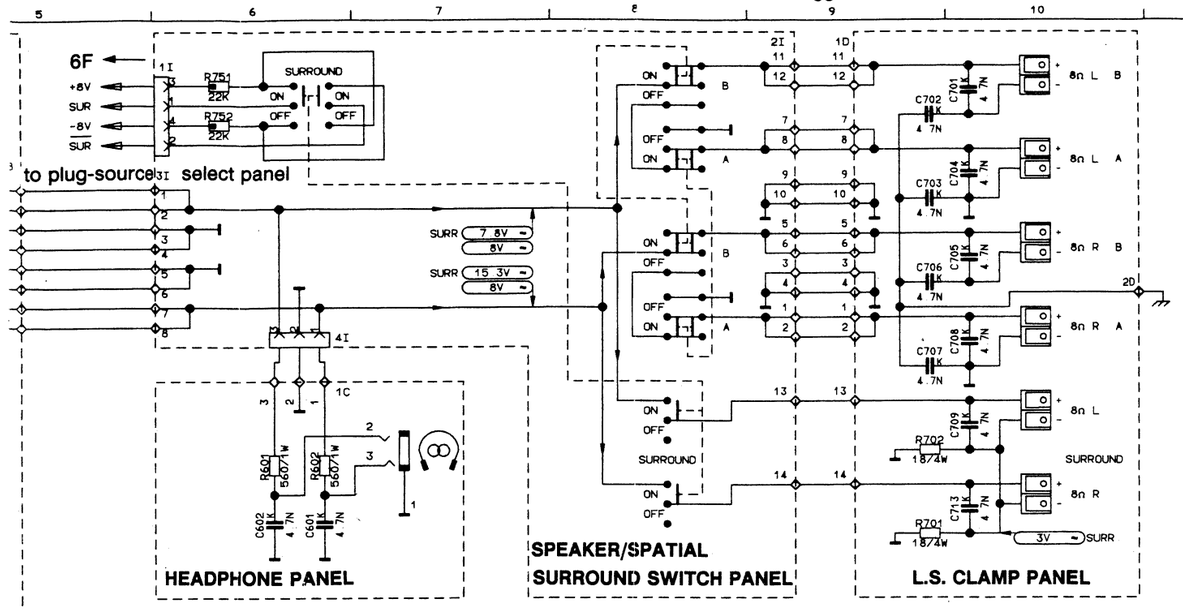
IC501 F3
IC501 A3
IC502 F10
IC503 G10

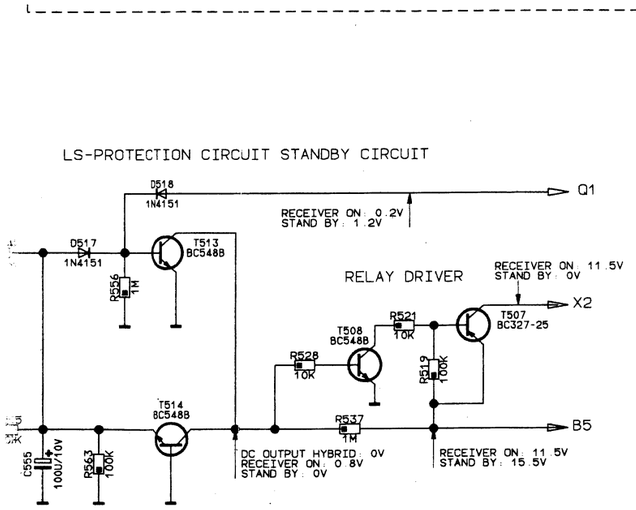
T501 G1
T502 G3
T504 G4
T505 L4
T506 E5
T507 A6
T508 B6
T509 D6
T511 E6
T512 D9
T513 E9

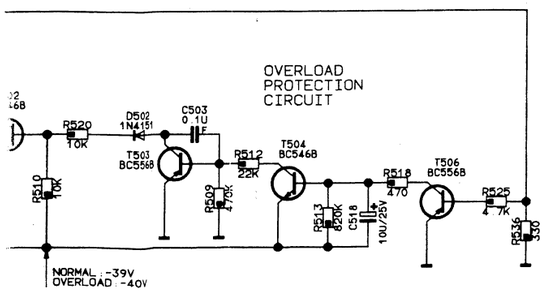
D501 H4
D502 G4
D503 C5
D504 A5
D505 B6
D506 D9
D507 D1
D509 F1
D511 G1
D512 F1
D513 F1
D514 F1
D515 F1
D516 H1
D517 G1
D518 G1
D521 G1
D522 H1
D523 E1
D524 E1
D525 E1
D526 E1
D651 D1
D652 D1

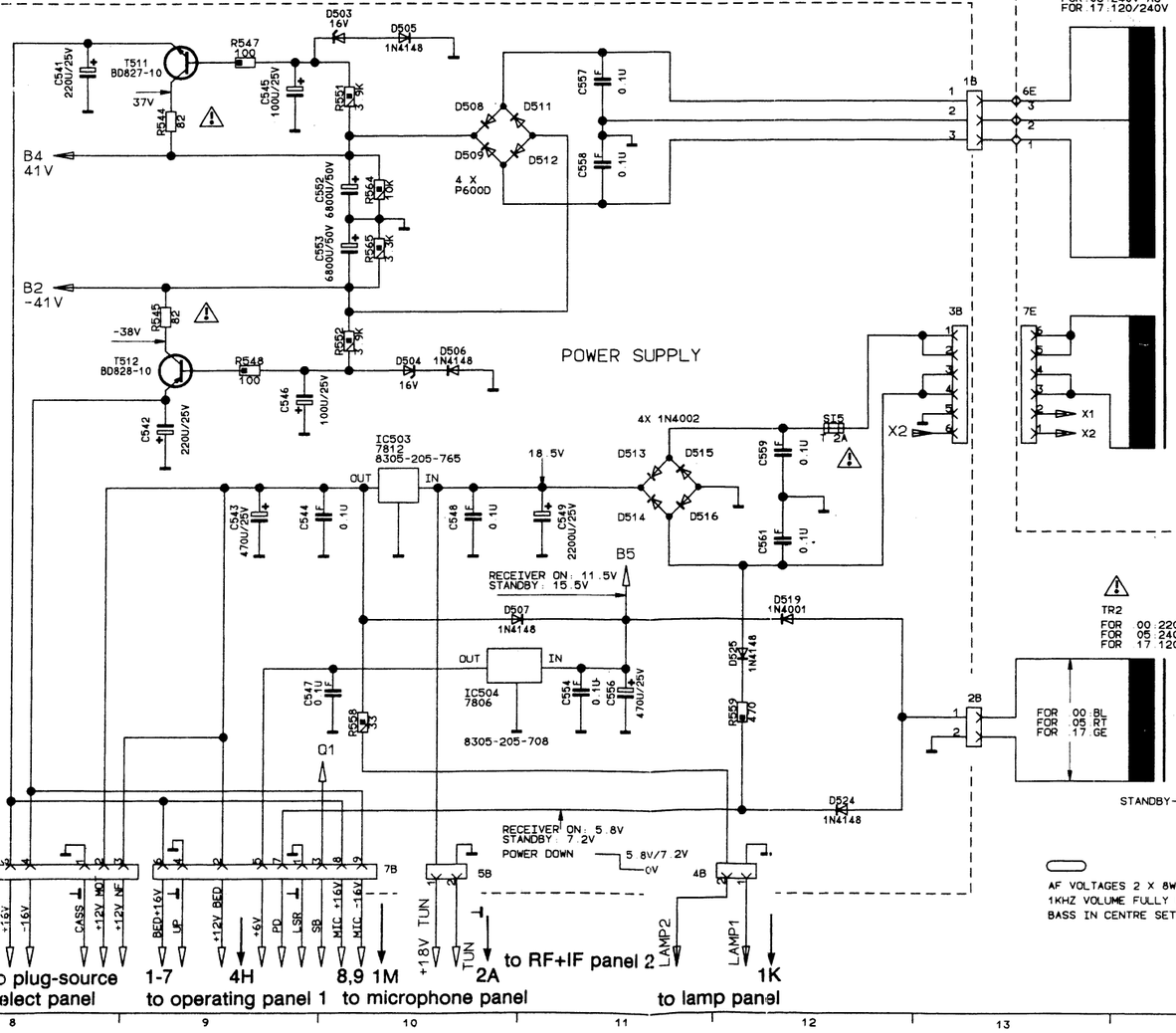
REL651 D15	D501 H4	C501 A1	C527 D9	R501 F1	R528 H3	R556 D9	
SI1 E16	D502 G4	C502 F1	C528 F9	R502 B1	R529 C4	R557 F9	
SI2 E14	D503 C5	C503 G1	C529 E9	R503 A1	R531 H4	R558 D10	
SI3 E14	D504 A5	C504 A2	C531 F9	R504 C2	R532 G4	R559 E10	
SI4 E14	D505 B6	C505 B2	C532 G9	R505 F1	R533 E4	R561 G10	
	D506 D9	C506 B2	C533 G10	R506 F1	R534 B4	R562 H11	
L501 G1	D507 D10	C507 E2	C534 H10	R507 G2	R535 C4	R563 H12	
L502 F5	D509 F10	C508 F2	C535 G10	R508 C2	R536 C4	R601 B8	
	D511 G11	C509 G2	C536 H10	R509 G2	R537 C4	R602 B8	
IC501 F3	D512 F11	C510 C4	C537 G11	R511 A3	R538 E5	R701 A9	
IC501 A3	D513 F11	C511 A2	C538 H11	R512 E3	R539 F5	R702 A9	
IC502 F10	D514 F11	C512 B2	C539 H11	R513 G3	R541 F5		
IC503 G10	D515 F11	C513 G2	C541 E11	R514 H3	R542 G5		
	D516 H11	C514 A3	C542 E11	R515 G3	R543 F5		
T501 G1	D517 G12	C515 D3	C543 F12	R516 G3	R544 B5		
T502 G3	D518 G12	C516 E4	C544 G12	R517 G3	R545 B5		
T504 G4	D519 G12	C517 G4	C601 B8	R518 H3	R546 B5		
T505 L4	D521 G12	C518 B5	C602 B8	R519 C3	R547 C6		
T506 E5	D522 H12	C519 B5	C651 E16	R521 C3	R548 B6		
T507 A6	D523 E10	C521 F5	C701 A9	R522 E3	R549 D6		
T508 B6	D524 E10	C522 G5	C702 A9	R523 E3	R551 E6		
T509 D6	D525 E10	C523 G5	C703 B9	R524 A4	R552 E6		
T511 E6	D526 E10	C524 B6	C704 C9	R525 B4	R553 E7		
T512 D9	D651 D15	C525 D8	C705 C9	R526 F4	R554 D9		
T513 E9	D652 D16	C526 F9	C706 D9	R527 F4	R555 E9		

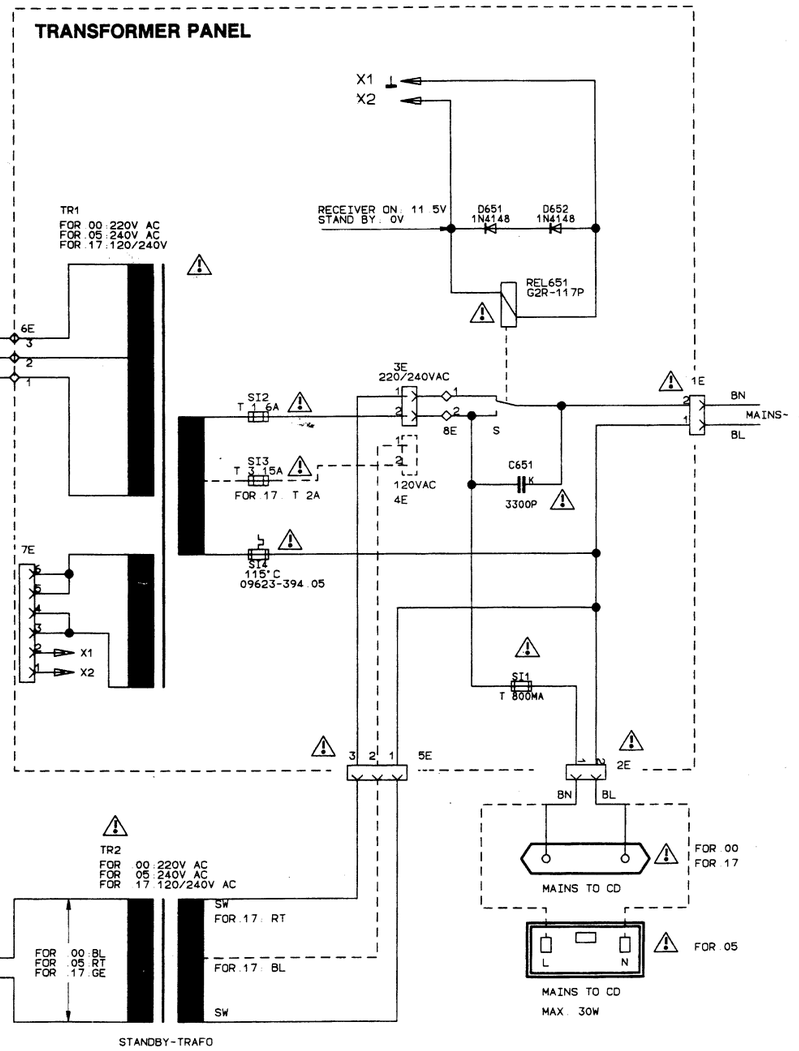
MC-Service











AF VOLTAGES 2 X 8W INTO 8Ω = 8V~ AT OUTPUT.
1KHZ VOLUME FULLY UP, LOUDNESS OFF, TREBLE AND
BASS IN CENTRE SETTING, LOUDSPEAKER SWITCHES ON

F L.S.CLAMP PANEL
SURROUND A SPEAKERS B
1D green
1 7 8 14
green
1–7 8–14
L31 L30

H TRANSFORMER PANEL
MAINS MAINS TO CD
SI1 T800MA SI2 T1.6A
120V
1E 2E 3E 4E
REL651
8E
7E B23
SI 4 115 °C TRANSFORMER
green
6E B24
5E
I21

I B22
STANDBY–TRAFO
H21

L LOUDSPEAKER SWITCH PANEL
F30 F31
1 green 7 8 2I green 14 3I
B25 K26 G29
4I 1I green
A B SURROUND

K HEADPHONE PANEL
green 1 3 1C L26
HEADPHONE

G PLUG PANEL
back up battery – + green C15
TAPE1/CASS. RC 5 BUS
green
1G 6 4 3 1 green 2C
C16 B17
PLUG SOURCE SELECTOR C3
SPATIAL SURROUND PANEL
L29 M28
6F IC805 IC804 7F 1 red
green
IC807
OUT IN L R PROCESSOR
blue 2F IC802
3F
TAPE 2 OUT IN R L IC803
AUX2 AUX1 CD PHONO IC801
5F green 6 green 6–8 1–5 B13 C27
IC808 IC806
1F NF OUT 1 red
4F TUNER red R L
E6 A19

A RF–IF PANEL
AM ANTENNA FM ANTENNA
G19
6A R69 red
F10 F11
L1 L2 MW LW
C2 C1
L5 L4
B
F7
IC 2 IC 3
D F8 C F5 i F6
B1 2A
R466 A F
IC4 G E
2 10 4A
IC 1
B3 B2 B1 B0
C2
b C305 L305 a
L308 c C325 d C327 e L309 f
L306 g C311 h

B AMPLIFIER–SUPPLY PANEL
A1 G17 G13
1–3 4–6
5B 6B
IC504 IC503
H23 3B GREEN SI 5 T2A
D20 4B
H24 grey 1B yellow
I22 2B
L25 green 10B
C552 C553
IC501 red 9B
7B IC502
8,9 1–7
M4 C14 C8

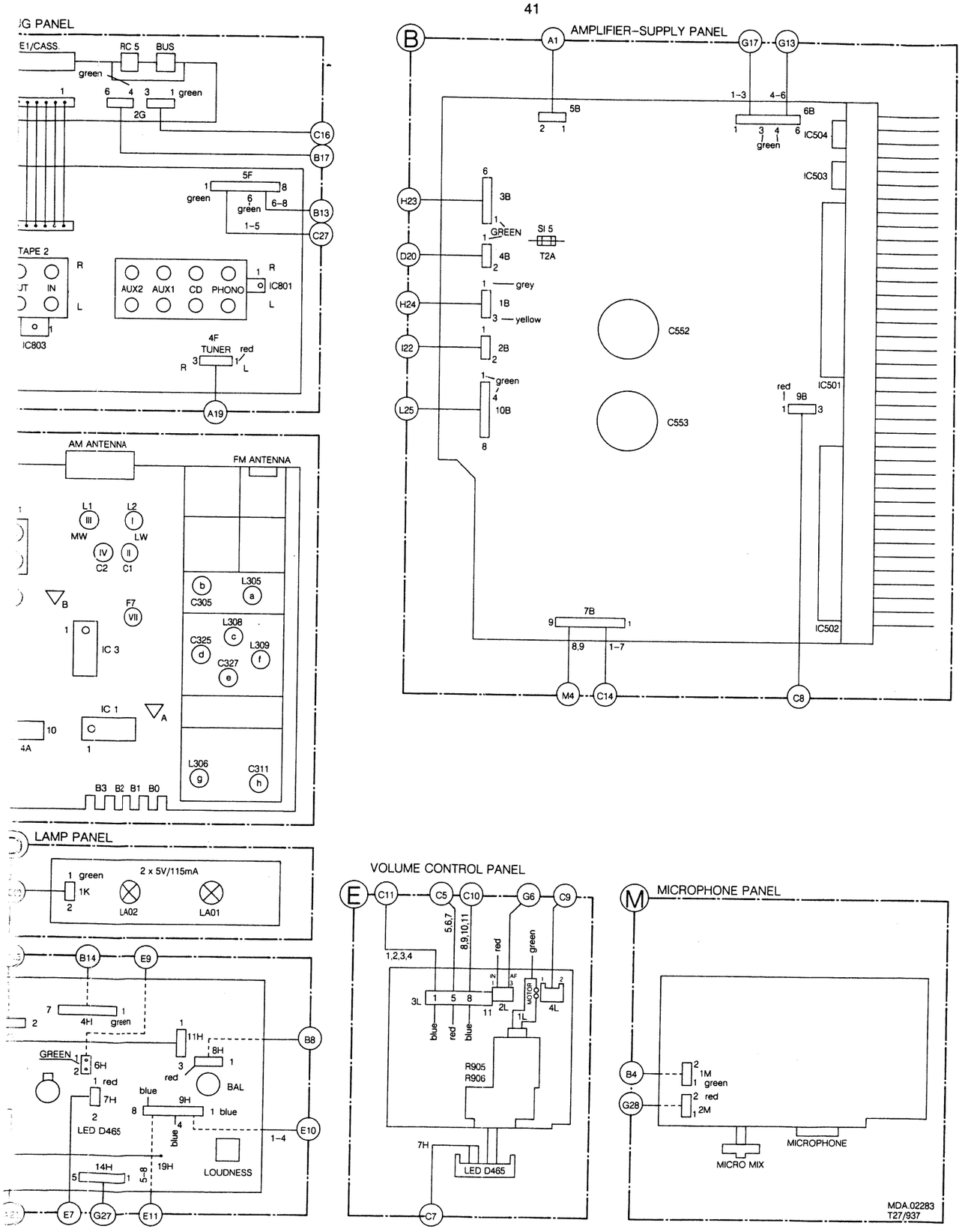
D LAMP PANEL
B20
1 green 1K 2
2 x 5V/115mA
LA02 LA01

C OPERATING PANEL
G15 B14 E9
IR SENSOR PANEL
12H 13H
LC–DISPLAY
green 1 2 3H
7 4H 1 green
green 1 10H 3
1 11H 3 red
8H 1 BAL
GREEN 6H 2 1 red
B8
G16 E5
1H 15H 3 red
IC401
16H 17H red
9 5H 1
blue 4 2H 1
7H 2 LED D465
blue 9H 8 1 blue 4
blue
E10 1–4
STANDBY BASS TREBLE
18H 19H
5 14H 1 5–8
LOUDNESS
G3 A2 E7 G27 E11

E VOLUME CONTROL PANEL
C11 C5 C10 G6 C9
1,2,3,4 5,6,7 8,9,10,11 red green
3L 1 5 8 11 2L 1L 4L
IN AF MOTOR
blue red blue
R905 R906
7H LED D465
C7

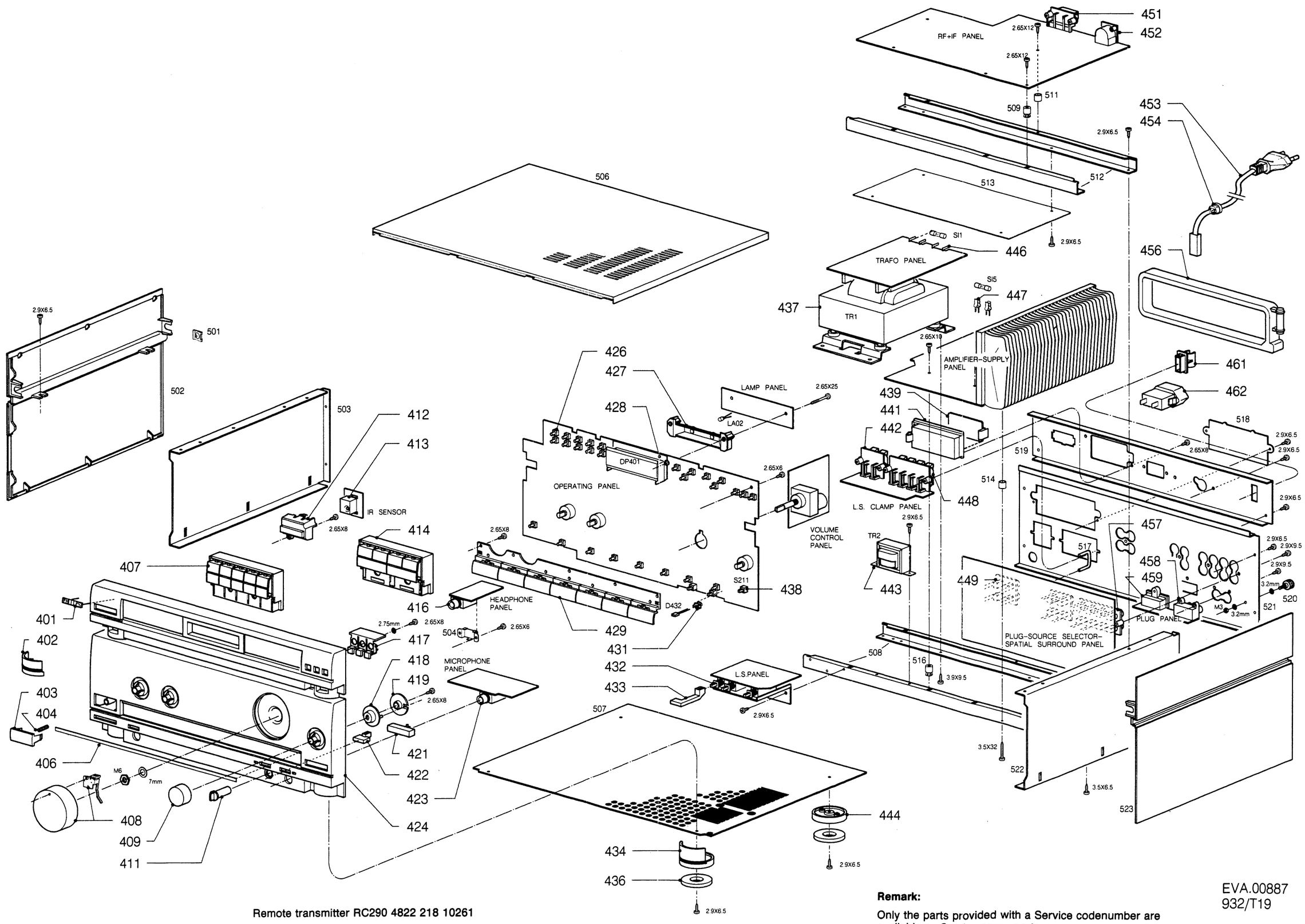
M MICROPHONE PANEL
B4 G28
2 1M 1 green
2 red 2M
MICROPHONE
MICRO MIX

MDA.02283
T27/937



List of mechanical parts

401	4822 459 10806
402	4822 460 10966
403	4822 276 12621
404	4822 492 52115
406	4822 466 92426
407	4822 410 60312
408	4822 413 41535
409	4822 413 41529
411	4822 413 41536
412	4822 218 10295
413	4822 218 10292
414	4822 410 60313
416	4822 267 31099
417	4822 410 60247
418	4822 466 92417
419	4822 466 92418
421	4822 410 60237
422	4822 410 60249
423	4822 267 31099
424	4822 426 51366
426	4822 276 12473
427	4822 380 20359
428	4822 256 91492
429	4822 410 60314
431	4822 255 40957
432	4822 276 12622
433 (A)	4822 410 60318
433 (B)	4822 410 60319
433 (sur)	4822 410 60248
434	4822 466 92374
436	4822 462 41409
437	4822 146 30807
437 /05R	4822 146 30806
438	4822 276 12615
439	4822 426 60558
441	4822 256 60299
442	4822 267 40881
443	4822 148 80919
443 /05R	4822 148 80924
444	4822 462 41408
446	4822 256 91489
447	4822 256 40065
448	4822 290 60835
449	4822 267 20383
451	4822 290 40315
452	4822 267 10219
453	4822 321 10634
453 /05R	4822 321 10638
454	4822 325 50164
456	4822 157 53633
457	4822 267 20385
458	4822 267 20384
459	4822 267 50953
461	4822 256 91336
462	4822 267 10231
462 /05R	4822 267 10232



Remote transmitter RC290 4822 218 10261

Remark:

Only the parts provided with a Service codenumber are available as Service spare parts.

EVA.00887
932/T19

List of electrical parts

C1	4822 125 50332	Cap. trimmer 7.5-50 pF LW-RF
C2	4822 125 50329	Cap. trimmer 4.5-20 pF MW-RF
C12	4822 122 33562	Cap. ceramic 36 pF 2% N150
C13	4822 122 33562	Cap. ceramic 36 pF 2% N150
C22	4822 122 33568	Cap. ceramic 68 pF 2% N750
C23	4822 122 33567	Cap. ceramic 4.7 pF 0.25 pF 2% N750
C24	4822 122 33565	Cap. ceramic 150 pF 2% N470
C26	4822 122 33572	Cap. ceramic 390 pF N1500
C45	4822 122 33571	Cap. ceramic 100 pF 5% N750
C46	4822 122 33571	Cap. ceramic 100 pF 5% N750
C62	4822 122 33569	Cap. ceramic 180 pF 2% N750
C66	4822 122 33569	Cap. ceramic 180 pF 2% N750
C225	4822 122 33571	Cap. ceramic 100 pF 5% N750
C226	4822 122 33571	Cap. ceramic 100 pF 5% N750
C305	4822 125 50329	Cap. trimmer 4.5-20 pF FM-RF
C311	4822 125 50386	Cap. trimmer 3-10 pF FM-osc
C312	4822 122 33563	Cap. ceramic 3.3 pF 0.5 pF N150
C316	4822 122 33559	Cap. ceramic 10 pF 2% N150
C322	4822 122 33559	Cap. ceramic 10 pF 2% N150
C325	4822 125 50329	Cap. trimmer 4.5-20 pF FM-RF
C327	4822 125 50329	Cap. trimmer 4.5-20 pF FM-RF
C332	4822 122 33564	Cap. ceramic 150 pF 2% N150
C334	4822 122 33557	Cap. ceramic 4.7 pF 0.25 pF N150
C336	4822 122 33561	Cap. ceramic 22 pF 5‰ N150
C405	4822 122 33571	Cap. ceramic 100 pF 5% N750
C406	4822 122 33571	Cap. ceramic 100 pF 5% N750
C506	4822 126 10302	Cap. ceramic 47 pF 5% N150
C507	4822 126 10302	Cap. ceramic 47 pF 5% N150
C508	4822 126 10216	Cap. ceramic 220 pF 5% N750
C509	4822 126 10302	Cap. ceramic 47 pF 5% N150
C511	4822 126 10302	Cap. ceramic 47 pF 5% N150
C512	4822 126 10216	Cap. ceramic 220 pF 5% N750
C513	4822 126 10302	Cap. ceramic 47 pF 5% N150
C514	4822 126 10302	Cap. ceramic 47 pF 5% N150

R66	4822 100 20694	Potm. trimmer 100K
R69	4822 100 20694	Potm. trimmer 100K
R73	4822 111 91658	Res. carbon 270K 2%
R78	4822 111 91658	Res. carbon 270K 2%
R211	4822 101 30636	Potm. 100K balance
R252	4822 102 20099	Potm. 2x50K bass
R253	4822 102 20101	Potm. 2x10K treble
R323	4822 116 53666	Saf. res. 47 Ω 5%
R327	4822 116 53666	Saf. res. 47 Ω 5%
R332	4822 116 81908	Saf. res. 12 Ω 5%
R424	4822 116 53666	Saf. res. 47 Ω 5%
R533	4822 116 81993	Saf. res. 100 Ω 5%
R534	4822 116 81993	Saf. res. 100 Ω 5%
R539	4822 116 81977	Res. met. 5.6 Ω 4W 5%
R541	4822 116 81977	Res. met. 5.6 Ω 4W 5%
R544	4822 116 81976	Saf. res. 82 Ω 5%
R545	4822 116 81976	Saf. res. 82 Ω 5%
R601	4822 116 81907	Saf. res. 560 Ω 2W 5%
R602	4822 116 81907	Saf. res. 560 Ω 2W 5%
R701	4822 116 81978	Saf. res. 18 Ω 4W 5%
R702	4822 116 81978	Saf. res. 18 Ω 4W 5%
R905, R906	4822 102 20102	Potm. 2x50K volume
R963	4822 100 20697	Potm. 50K micro

4822 130 41246	BC327-25
5322 130 44647	BC368
4822 130 44461	BC546B
4822 130 40937	BC548B
4822 130 44196	BC548C
4822 130 41096	BC550C
4822 130 41691	BC556B
4822 130 44197	BC558B
4822 130 61755	BC560C
4822 130 61803	BD827-10
4822 130 41761	BD828-10
4822 130 40902	BF240
4822 130 41817	BF982-I
4822 130 42121	2SK30
4822 130 61298	2SK544E

4822 209 71785	LA1266
4822 209 73434	LA3401
4822 209 73435	LC7217
4822 209 72748	LC7821
4822 209 73452	LM833
4822 209 61336	M 34200M4-160SP
4822 209 70361	MC78M06CT
4822 209 70072	STK4036 X
5322 130 42221	7812
4822 209 70414	RC4559NB

4822 130 33773	BAT42/BAT43
4822 130 31322	GL-9 PR2
4822 130 81003	KV1310
4822 130 81595	Zen. diode 2.7V 0.5W
4822 130 33783	Zen. diode 6.8V 0.5W
4822 130 81596	Zen. diode 6.8V 1.3W
4822 130 81615	Zen. diode 12V 0.5W
4822 130 33785	Zen. diode 16V 0.5W
4822 130 31438	1N4001
5322 130 30684	1N4002
4822 130 30621	1N4148
5322 130 34052	1N4151
4822 130 81614	MR752
4822 130 81002	SVC321

F1+F4	4822 242 72291	Cer. filter 10.7 MHz FM-IF
F5	4822 156 11093	Coil FM-IF
F6	4822 156 11092	Coil FM-IF
F7	4822 242 72289	Cer filter AM-IF 450 KHz
F8	4822 214 51727	LP filter
F9	4822 156 11104	Filter pilot 19 KHz
F10	4822 156 11104	Filter pilot 19 KHz
L1	4822 156 11094	Coil MW-RF
L2	4822 156 11095	Coil LW-RF
L3	4822 156 11091	Coil LW-osc.
L4	4822 156 11089	Coil MW-osc.
L5	4822 157 53632	Coil, choke 39 MH
L305	4822 156 11099	Coil FM-RF
L306	4822 156 11096	Coil FM-osc.
L307	4822 157 60206	Coil, choke

L308	4822 156 11098	Coil FM-RF
L309	4822 156 11097	Coil FM-RF
L311	4822 157 53631	Coil 1.5 UH
L501	4822 157 60207	Coil
L502	4822 157 60207	Coil
L901	4822 157 60208	Coil 47UH
L902	4822 157 60208	Coil 47UH
TR1	4822 146 30809	Transf. Mains 220 V
TR1 /05R	4822 146 30801	Transf. Mains 240 V
TR2	4822 148 80919	Stand-by trafo
TR2 /05R	4822 148 80924	Stand-by trafo

Miscellaneous

DP401	4822 130 90692	LCD display
KR401	4822 242 72611	Crystal CSB1000D
LA401	4822 134 40957	Lamp 5V 115 mA
LA402	4822 134 40957	Lamp 5V 115 mA
P301	4822 526 10406	Bar, ferrite
P302	4822 526 10406	Bar, firrite
REL651	4822 280 50076	Relais G2R-117P
Q1	4822 242 72294	Crystal 7.2 MHz
Q2	4822 242 72295	Crystal 456 KHz
SI1	4822 253 30019	Fuse 800 mA/T
SI2	4822 253 30024	Fuse 1.6A/T
SI4	4822 252 20237	Thermo fuse 115°C
SI5	4822 253 30025	Fuse 2A/T